# The Lumleian Lectures

ON

# INFECTIVE ENDOCARDITIS MAINLY IN ITS CLINICAL ASPECTS.

*Delivered before the Royal College of Physicians of London on March 26th and 31st and April 2nd, 1903,*

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## LECTURE I.

*Delivered on March 26th.*

MR. PRESIDENT AND GENTLEMEN,—When I was honoured with the invitation from the President and Board of Censors of this College to deliver this course of lectures I was, I fear, presumptuous in selecting a subject which had been so ably treated by many others and which had formed the thesis of Dr. Osler's Goulstonian Lectures in 1885. My choice was influenced by several circumstances. I was convinced that I could hardly select an affection of greater clinical interest, for no disease appears under more varied or more perplexing forms. Moreover, I have a number of coloured drawings which I have made during my tenure of office at the Liverpool Royal Infirmary representing the morbid appearances of the heart characteristic of the various forms of disease to which it is subjected and I hoped that these illustrations might render any lectures dealing with diseases of this organ the more interesting. I intend to lay before you drawings exhibiting the chronic lesions of the endocardium as well as those delineating the features of infective endocarditis, as the morbid appearances of the one and the other become emphasised by contrast.

Long before physicians suspected that the lining membrane of the heart was subject to inflammation, and long before they understood the nature and clinical features of endocarditis, they had noted the morbid changes characteristic of the affection in its various forms and had described the sclerotic, verrucose, ulcerative, and calcareous lesions of the valves. Owing, however, to the imperfect development of pathology and of clinical methods they were unable to associate these conditions with definite symptoms and did not therefore attempt their diagnosis.

Matthew Bailey[1] as late as 1807 observes: "The symptoms which are produced by diseased alteration in the structure of the valves of the heart are not so distinct as to be clearly discriminated in practice. ..... No observations have yet been made by which practitioners have been able to ascertain with precision what set of valves is diseased." Bailey's statement no longer holds good. Not only is the physician of to-day able to recognise, as a rule, "what set of valves is diseased," but not infrequently also to determine the nature of the disorder; his methods of treatment are no longer empirical, but are founded on his knowledge of the character and cause of the disease he is called upon to cure. In the works of Morgagni and of Senac the pathological and clinical features of certain cases of heart disease are so clearly set forth that it is possible to recognise their nature. Examples of the various forms of endocarditis may be distinguished and here and there a case of an infective character may be met with, and it is interesting to find in the histories recorded the clinical experience of to-day faithfully mirrored. I propose for a few moments to direct attention to one or two of these cases, selected from the works of physicians of the eighteenth century.

Morgagni[2] describes the post-mortem appearance of a woman who died from cerebral hæmorrhage. It seems likely that her death was due to embolism and ulceration of a cerebral artery, depending upon infective heart disease, for Morgagni states that "the valves which are called the tricuspids and the mitrals were universally distinguished by small round fleshy masses." In another place[3] he gives particulars of what appears to be an example of acute gonorrhœal endocarditis: "A young man fell into a disease which seemed to be a dropsy of the thorax, for which reason his legs being swelled, his pulse being very low, and a virulent gonorrhœa moreover affecting him, he died." At the necropsy he says: "And no disorder appearing in the heart of any of the vessels, excepting in the valves of the great artery. On these, at the upper part of their border and on the neighbouring part of that surface with which they look upon each other, they swelled into short unequal excrescences by the load of which being weighed down they were all brought so near together as to leave but a very narrow passage between each other through which the blood might pass out." This is an excellent description of verrucose endocarditis of the aortic valves causing aortic obstruction; and he goes further and enables us to assume that this affection was, as is commonly the case, engrafted on degenerated valves. "When I examined each valve in particular I saw that the right had its border much shorter than usual and the left was ruptured through the middle, and that from the very lips of this rupture other excrescences were protuberant. The substance of all these valves was in parts lax and flaccid, so that it might be very easily pulled away by the fingers, and yet it was in part harder than usual, so that when rubbed between the fingers some particles were felt to be mixed with it, which approached in some measure to the nature of cartilage. These excrescences being taken away the substance of the valves remained but was contracted and deficient." He states that the liver was enlarged and describes a condition of the spleen which was probably due to the presence of simple infarcts in the organ.

Senac[4] describes the appearance of a heart evidently obtained from a victim of infective endocarditis of the ulcerative type. "A child of 12 drank a glass of cold water on a hot day. From that time it was subject to palpitation, which continued several years, and it then fell into a phthisis. The heart was of monstrous size. ..... One of the sigmoid valves was gnawed by suppuration and white friable matter was mixed with the blood of the heart." Evidently this was a case of chronic valvular disease with great hypertrophy and dilatation which had assumed an infective character and was attended with the usual symptoms—anæmia and wasting, or what Senac terms "a phthisis."

About half a century later Corvissart,[5] speculating on the nature of endocardial vegetations, says: "Under the names of vegetations I do not intend to speak of eminences or osseous or cartilaginous asperities, but of veritable soft growths having the closest resemblance to venereal warts, and certain appearances after a number of observations lead me to think that these growths may be of a syphilitic origin." He then describes certain cases evidently examples of infective endocarditis. I will quote one: "A man, 39 years of age, intemperate, exposed to vicissitudes of heat and cold, with a history of rheumatism, suffered from cough, vomiting, and fever at night, livid, red, scorbutic-like stains on the body and limbs, and dropsy. The dull sound obtained over the heart, the character of the pulse, the dyspnœa, the colour of the lips, the engorgement of the liver, pointed to disease of the heart. At the autopsy the great portion of the mitral valve which is below the orifice of the aorta was no longer held by the tendinous threads to the fleshy columns. At its border, now free, hung several kinds of vegetations, some irregular in shape, elongated and resembling certain venereal excrescences. These vegetations appeared to be formed by degeneration of the attached tendinous threads. Vegetations of a considerable size were also seen on the semilunar valves of the aorta." The clinical history and pathological description indicate that the disease was an infective endocarditis complicating a case of chronic heart disease. In the account given of this patient's personal history, an attack of rheumatism, habits of intemperance, and exposure to vicissitudes of heat and cold, we trace familiar predisposing causes of infective endocarditis.

Bouillaud[6] recognises in certain appearances of the endocardium the evidence of an inflammatory process and he discerns in acute rheumatism the common cause of this inflammation. He also refers to a form of heart disease, ulceration of one or the other valves with typhoid symptoms.

[1] Treatise on the Morbid Anatomy of Some of the most Important Parts of the Human Body, 1807, p. 44.
[2] De Sedibus et Causis Morborum, epis. 26, 1769.
[3] Epis. 24.
[4] Traité de la Structure du Cœur, de son Action, et des ses Maladies, tome xii., 1749.
[5] Essai sur des Maladies et les Lésions Organiques du Cœur.
[6] Traité Clinique des Maladies du Cœur, 1824.

Among other cases he describes the following. "A young man, aged 18 years, died in a typhoid condition. There was a perforation of the aorta connected with the left auricle." In another patient with similar symptoms there was an ulceration of one of the aortic cusps. Bouillaud noted the peculiar character of the forms of endocarditis associated with typhoid symptoms and distinguished these cases from the endocarditis of rheumatism. "The endocarditis of rheumatism," he says, "is simply inflammatory. In the disease spoken of as typhoid or putrid the inflammation is, as in the preceding form, the essential element, but it is much modified by the typhoid condition which accompanies it. This form of endocarditis must not be confounded with simple endocarditis. I use the term 'typhoid endocarditis' to indicate an endocarditis modified by its coincidence with a typhoid state and not an endocarditis which causes by itself typhoid phenomena."

Thus to Bouillaud must be ascribed the honour of having recognised not only the relationship between rheumatism and simple endocarditis, but also the association of ulceration of the cardiac valves with symptoms of typhoid fever. For a quarter of a century the question remained as Bouillaud had left it. The next period of advance may be divided into three stages, each distinguished by some valuable addition to our knowledge. The first was inaugurated by Kirkes who in 1853 enunciated the embolic theory and gave an emphatic demonstration of the lesions and clinical features of ulcerative endocarditis, but he studied the consequences rather than the nature of the affection. The second was characterised by the dawn of bacteriological research, the demonstration, as yet imperfect, of micro-organisms in the diseased valves and emboli. Rokitanski in 1855 indicated the presence of bacteria in vegetations; his observations were confirmed by Virchow, Winge, Hjalmar, Heiberg, and others. The third period was marked by the introduction of a perfected bacteriological technique and the comprehension of the biological characteristics of bacteria.

It soon became evident that infective endocarditis was not a specific disease produced by one species of micro-organism, but by different varieties, notably the streptococci, the staphylococci, and the pneumococci. Experimental research has now completed the series of proofs in support of the infective and parasitic origin of this form of endocarditis. By the injection of cultures of particular organisms into the blood of animals lesions of the valves of the heart were produced, apparently similar to those of ulcerative endocarditis in man. The injection in many instances was associated with procedures which insured injury of the valve. The lesions of the valves were either severe, produced by the introduction of instruments, or infinitesimally slight, caused by the injection of finely divided matter of some kind with the culture. In the case of certain of the more virulent organisms the introduction of the culture into the circulation of the animal was sufficient to excite an endocarditis.

Infective endocarditis, considered at first as a local malady, generalising itself subsequently by the introduction into the blood of products formed at the level of the valve affection, came to be regarded as one of the complications of a general infection. It was evident that while pathogenic organisms might establish themselves on a part of the body in connexion with the exterior and create a local lesion they could not localise themselves in an organ at a distance from the surface unless carried to that organ by the blood. Moreover, bacteriological research explained how a local lesion, as in pneumonia, typhoid fever, or urethritis, might lead to a generalised infection and how a septicæmia or pyæmia, produced either by a specific lesion, or by a suppurative focus, or by a simple traumatism, might lead to an infective endocarditis. Investigations in the same directions also demonstrated that specific disorders, whether local, like diphtheria, or general, like scarlet fever, favour the entrance into, and the multiplication in, the organism of the pyogenic cocci, so that an endocarditis originating as a complication of these local or general affections might be excited by the specific or by the pyogenic bacteria.

It is sometimes difficult to distinguish between the two forms of endocarditis, the simple and the infective, the difference being often one of degree rather than of kind. The distinctions may be considered from three points of view—first and foremost, the clinical; secondly, the anatomical; and, lastly, the bacteriological.

The clinical features of infective endocarditis are well known, but those of the subacute or chronic forms have only been recognised by some physicians in comparatively recent years and may perhaps even now not be admitted by all. Thus, Dieulafoy[7] observes: "There are forms of simple endocarditis which, by the benignity of their general symptoms, do not enter into the category of infective endocarditis and which may nevertheless present as anatomical lesions verrucose vegetations, the source of non-infective emboli, and ulceration affecting the valves or chordæ tendineæ of the heart." I will not now allude to the special clinical aspects of subacute and chronic types of the disease beyond pointing out that intense constitutional disturbance is sometimes absent, that pyrexia is a prominent but not an absolutely essential characteristic, that anæmia, diarrhœa, and albuminuria are common, that there is usually enlargement of the spleen, and that infarctions are of frequent occurrence.

Anatomically infective endocarditis is characterised by the presence of vegetations, usually numerous, large, and fungating, associated in some instances, but not in all, with ulceration of the valves or endocardium or rupture of the chordæ tendineæ. Occasionally, however, erosions of the valves and rupture of the chordæ tendineæ are due to simple friction or atheromatous softening.

These vegetations always contain micro-organisms or the débris of micro-organisms; micro-organisms are usually found in the blood. The bacteriological aspect is complicated by the fact that hitherto an infective endocarditis developing in association with an attack of rheumatism has generally been attributed to some secondary infection. It has recently been demonstrated by Treboullet, Dr. A. Paine and Dr. F. J. Poynton, and Dr. R. M. Beaton and Dr. E. W. Ainley Walker that rheumatism is an infective disorder depending on the action of a specific microbe and that this organism is capable of exciting endocarditis in its fungating as well as in its simple form.

Infective endocarditis may therefore be divided into two principal classes: one, rheumatic, due to the specific organism of rheumatism; and the other septic, occasioned by the pyococci. In the former, according to Litten,[8] the temperature may be high or low, the spleen is enlarged, the urine gives the diazo-reaction, petechial and retinal hæmorrhages are common, but suppurating infarcts never occur. It must, however, be noted that Dr. G. Newton Pitt, from an analysis of the post-mortem reports at Guy's Hospital of malignant endocarditis, came to the conclusion that it was possible that the malignant endocarditis of rheumatism might result in suppurating infarctions.

Since it has been demonstrated that both forms of acute endocarditis, the simple and the infective, are occasioned by the agency of microbes and are therefore infective in origin, the use of the terms "infective" and "non-infective" is hardly justifiable, excepting in so far as their employment is sanctioned by custom. Thus the distinction in the nature of the two affections is one of degree, the micro-organisms being more virulent in one than in the other. Although simple endocarditis, of which the rheumatic is the type, is the consequence of an infection, it is characterised by lesions which localise themselves and tend to develop into fibrous tissue, the infective character being gradually lost; the endocarditis, though infective in origin, is not in itself infecting. On the other hand, the lesions of malignant endocarditis preserve their infective character and tend to diffuse themselves, are not associated with the development of plastic tissue, but rather with necrosis. The débris of broken-down tissue, microbes, and their toxin enter the circulation and give rise to a general infection of a septicæmic or pyæmic character. The word "malignant" would be more appropriate than "infective," but it is usually applied to the acute forms of the disease.

It is unfortunate that the term "verrucose endocarditis" is applied by some authors to the simple endocarditis of rheumatism. Rosenheim[9] uses the term in this sense. He states that "life is comparatively rarely threatened in verrucose endocarditis," meaning rheumatic endocarditis. Again, Prudden[10] sharply separates malignant from verrucose endocarditis. The vegetations of the latter, he says, contain no organisms. Dr. E. Fraenkel and Dr. Alfred Sängers controverted this conclusion, for in 13 cases of verrucose endocarditis examined by them by plate cultivation ten showed

[7] Manuel de Pathologie Interne, 1888, p. 326.
[8] Über der Maligne Non-Septische Forme der Endocarditis Rheumatica.
[9] Von Ziemssen's Cyclopædia.
[10] An Experimental Study of Myocardiac Endocarditis, Journal of American Science, 1897.

the presence of micro-organisms; eight kinds of bacteria were present, sometimes alone, sometimes in combination; six by inoculation into animals proved to be pathogenic. It would be better, therefore, to limit the term and to use it only to distinguish the fungating lesions of infective endocarditis. In every one of my cases of verrucose endocarditis organisms were found in the vegetations when looked for, though sometimes culture methods failed to reproduce them. There can be little doubt that pyogenic and other organisms identical with those of the malignant forms of endocarditis are to be found in the "benign excrescences" of Dieulafoy. To limit the term "infective" to those forms of endocarditis characterised by severe constitutional symptoms would be to exclude a great number of cases, which, although of a less pronounced type, originate under the action of similar pathogenic organisms and pursue an equally serious, if more protracted, course. The importance, therefore, of recognising the more chronic forms of the disease lies in the prognosis.

It is necessary to consider some of the causes predisposing to infective endocarditis before discussing the source of primary infection. As regards sex, 65 per cent. of patients were males and 34 per cent. were females, figures approximating closely to those of Dr. Osler—viz., nearly 62 per cent. males and 38 per cent. females. Dr. T. N. Kelynack, in a summary of 45 cases, found 75 per cent. males and 24 per cent. females. The average age of my male cases, 40 in number, was 30 years; the oldest was 56 years of age and the youngest was 16 years of age. Of these 40 patients 11 were under 25 years, 22 were under 35 years, and 18 were above 35 years. The average age of the female patients, 21 in number, was 25 years. The oldest female was 48 years of age and the youngest was 12 years of age. 12 out of 21 were below 25 years, 18 were below 35 years, and only three were above 45 years, so that the disease occurred more frequently in young women than in young men.

When discussing the etiology of ulcerative endocarditis Kirkes, in 1863, remarked that it "is especially liable to occur in those who have been greatly debilitated, or who have led intemperate lives, or who are particularly cachectic." In the majority of my patients the disorder developed under conditions likely to be attended with general debility. Three were underfed and overworked dressmakers; one was a general servant; four of the men had been exposed to intense heat as labourers or mechanics; four were sailors, two of whom had recently suffered from ague, one from syphilis, and another had returned from a voyage in which he had undergone great privations; and another, a boy, had been much exposed to heat and cold. Three were plumbers or painters; one was a runner for a shipping company, his duties leading him to be out on the river at all hours of the day or night; another was a lamplighter; and another a broken-down soldier who had become a scavenger. In 25 per cent. there was a clear history of intemperance. Symptomatic anæmia and chlorosis must be ranked as predisposing causes. It supervened in two cases, a male and a female, who had lost much blood from hæmorrhoids. In four cases it followed parturition and in one of these there was flooding. Though in three instances rigors occurred a day or two after child-birth, the course of the disease in all four women was distinctly chronic, as from five weeks to four months elapsed before they came to the hospital. In three there was old valvular mischief; in the fourth alcoholic cirrhosis of the liver. In all the anæmia associated with pregnancy and parturition was a predisposing cause; the bacteria probably entered the system through the uterus, for in one a fragment of placenta remained behind and in a second the cervix was fissured and unhealthy.

M. Matthis, veterinary surgeon of Lyons, has published cases of infective endocarditis in dogs. He found that intravenous injections of cultures of micro-organisms did not produce the disease in healthy animals unless there had previously been a severe blood-letting. In two or three cases where it developed spontaneously there had been exhausting hæmorrhage after operation.

With regard to chlorosis, profound anæmia commonly attends infective endocarditis, and it is so often an early symptom of the disease that it is difficult in young females to decide to what extent the anæmia is due to the heart affection or to a chlorotic condition which may have preceded it. A solution of the problem is more likely to be arrived at in private than in hospital practice where it is commonly more difficult to obtain a clear personal history. Dr. M. G. Etienne[11] reports a case of infective endocarditis originating, he believes, in chlorosis. A woman, aged 20 years, who was treated for chlorosis in January, 1896, suffered from a relapse in December, 1896, and developed inorganic murmurs. Three months afterwards febrile symptoms set in and she died in March. At the necropsy there was no sign of tuberculous disease, but the mitral valve was covered with vegetations of the size of a lentil. Dr. Gerode[12] directs attention to similar cases.

The symptoms in my two patients so closely resembled each other that it will be quite sufficient if I give a few particulars of one case only. In 1902 I visited a young lady with Mr. H. Gorst of Huyton. She had been treated at different times for chlorosis. For two or three months before I saw her she had been out of health, breathless on exertion, and anæmic. She was an enthusiastic hockey player but had to content herself with keeping goal. She had never had rheumatism. Mr. Gorst found the patient in a feverish condition on his first visit, but there was no history of rigors or of any pronounced symptoms, only an indefinite period of impaired health. A mitral murmur with some enlargement of the heart was noted when first examined. She rapidly became very anæmic, aortic trouble developed, the spleen enlarged, albumin appeared in the urine, and in about four months the disease proved fatal. It is possible that mitral regurgitation with perhaps some slight sclerosis of the valve might have been initiated by the chlorosis and the violent exercise she at one time indulged in.

It is possible that Bright's disease may predispose to infective endocarditis. One woman had had albuminuria during pregnancy. Three men had chronic Bright's disease; two of them were painters and suffered from cirrhotic kidneys; and the third had large pale mottled kidneys and a syphilitic gumma in the testicles. In one of the painters the earliest symptoms pointed to kidney trouble.

Dr. Osler has collected 54 cases of infective endocarditis preceded by pneumonia. Greenfield, Prevost, and others have reported instances of a similar character. Dr. Kanthack and Dr. H. M. Tickell found antecedent pneumonia in 14 per cent. of their 84 cases. In only 7 per cent. of my cases had an inflammation of the lungs preceded the endocarditis. Infective endocarditis almost invariably attacks an endocardium which has been previously damaged by acute or chronic inflammation, hence rheumatism is an important predisposing cause. I have already alluded to fungating endocarditis excited by the specific microbe of rheumatism.

In my cases there was a rheumatic history in 53 per cent. of the males and in 71 per cent. of the females; 16·3 per cent. had suffered from rheumatism within nine months of their admission. Ten—that is, 16·3 per cent.—were admitted with symptoms of rheumatism. About the same number experienced pain, with sometimes slight swelling of one or more joints during the progress of the fatal disorder, but these are not included among the rheumatic cases as the arthritic manifestations may have been pseudo-rheumatic and due to the septicæmic condition. There was post-mortem evidence of chronic disease of the heart in 83 per cent. of my patients, including 8·4 per cent. where the lesion was congenital.[13] Dr. Kanthack and Dr. Tickell found chronic disease of the valves in 64·27 per cent. Dr. Kelynack recognised old cardiac lesions in 75 per cent. but at the same time he says that "in only four instances there were any satisfactory grounds for believing that the valves were normal prior to the establishment of the infective process, and in several of these even it was not quite clear but that there might have been some previous slight local thickening of the valve segments."[14] Orth goes so far as to state that infective endocarditis does not develop on perfectly sound valves.

The aortic and mitral valves were together the seat of sclerotic changes in 30 out of 47 instances; in 14 cases both valves were involved by infective lesions; in six cases the aortic cusps and in ten cases the mitral cusps alone were implicated. The aortic valves only were sclerosed in six cases out of the 47 and were involved in every instance but one in the mycotic process. The mitral valves were more or less sclerosed in 27 instances and were the seat of infective lesions in 20 instances. In five the fungating growths involved the auricular surface of the mitral curtains and in three extended backwards into the auricle, the aortic valves, though sclerosed, not being implicated. The localisation of

[11] Medical Press, August 21st, 1897.

[12] Société Clinique de Paris, 1890.

[13] Dr. Osler found sclerotic changes in more than three-quarters of his Montreal cases.

[14] Medical Chronicle, vol. viii., p. 97.

the lesion in these circumstances depended in great measure on the existence of mitral incompetence due to dilatation of the ventricle from aortic regurgitation, as well as on the presence of some sclerosis of the mitral segments; in two cases, indeed, the mitral cusps were healthy.

Such are some of the causes which predispose to infective endocarditis.

I will begin my next lecture with a brief discussion of the manner in which the infecting micro-organisms enter the circulation.

# An Address

ENTITLED

# A FRAGMENTARY CONTRIBUTION TO THE OPERATIVE TREATMENT OF CHRONIC SUPPURATION WITHIN THE TEMPORAL BONE.

*Delivered before the Burnley Medical Society on Dec. 4th, 1902,*

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(*With Plate.*)

MR. PRESIDENT AND GENTLEMEN,—When I received your secretary's courteous invitation to read at a meeting of your society a paper on Chronic Suppurative Disease of the Temporal Bone I gladly accepted the invitation. The subject includes so many questions—such as meningitis, inflammation of the brain, and general systemic infection—of such great interest to all branches of the profession that it was a little difficult to decide on the exact title of my paper. However, as I understand that it is your desire that I should address you on the operative treatment of chronic otorrhœa I invite your attention to this fragment of the subject.

Some of you will remember that in January, 1900, I read a paper before the Royal Medical and Chirurgical Society on the Operative Treatment of Chronic Otorrhœa which gave rise to some discussion. The great attraction of surgery is that it is ever an advancing science and I can honestly say that never, since the reading of that paper, have I performed the operation exactly as it is there described. I therefore welcome this opportunity of bringing to your notice the modifications and (as I consider) improvements which appear to me to be useful and trustworthy. An improvement of a great operation, even in some small detail, is as beautiful and fascinating to the spirit of surgery as is the "trembling of the ocean waves under the first pure gleam of morning"[1] to the eye of the artist.

The objects which I have had in view have been: (1) to simplify the operative procedure; (2) to avoid any external deformity; (3) to conserve the hearing power; and (4) to hasten the healing process. In 1889, Küster, in the course of a discussion on the treatment of chronic suppuration in rigid walled cavities, stated that "the simple opening of the antrum could have but a limited influence on chronic middle-ear suppuration, and for the reason that the communication between the antrum and tympanum is small and, in such cases, apt to be still further narrowed by granulations and swollen mucous membrane." "The rational treatment of chronic otorrhœa, therefore, must be based on the surgical principle that a diseased bony cavity should be opened up extensively, all diseased tissue removed, and the source of the suppuration clearly brought to the light. Only when this is done are the surgical requirements fulfilled."[2]

In the same year Stacke wrote: "Otology is an offshoot of surgery and only in close adherence to it and in the true and conscientious observance of its principles is success to be sought for and to be found. ..... The most important principle is the care for free, unhindered, spontaneous drainage. Incomplete drainage and, as a consequence, further and deeper bone disease, is the cause of the difficulty in healing middle-ear suppurations."[3] It is to the recognition of these truths that successful practice in recent years in abating and curing chronic purulent otorrhœa has been due. As Körner so clearly indicates by the very title of one of his works[4] chronic purulent otorrhœa is in effect suppuration in a cavity in the temporal bone. In the recesses of the temporal bone suppuration follows the same course as does suppuration in a cavity in any other bone, or indeed in any situation where the walls of the abscess cavity are incapable of contraction or approximation. What this course is all surgeons know.

When a simple empyema is opened early, before the lung has become bound down by adhesion, the expansion of the lung soon obliterates even a large abscess cavity and healing is not long delayed; but if the empyema be not opened until late, after the lung has become so firmly fixed as to render its expansion impossible, a very different result follows. The acute symptoms may, indeed, be relieved, but instead of the wound readily cicatrising suppuration persists and will go on indefinitely unless surgical measures are taken for the obliteration of the cavity. In the large irregular cavity which is left in such a case we have a picture on a large scale of the essential condition underlying the difficulty of curing middle-ear suppuration. In the one case the complete Estlander, and in the other the complete mastoid, operation must be done. In the temporal bone the suppurating cavity is, as regards its mere size, insignificant, and the amount of pus discharged therefrom is not often of itself important, but the environment of the disease is such as to render it at once difficult to eradicate and dangerous to leave untreated.

Until recent years surgeons cannot be said to have been keen on the operation for the cure of chronic purulent disease within the temporal bone, for—

> "We all, that are engaged to this loss,
> Knew, that we ventured on such dangerous seas,
> That, if we wrought out life, 'twas ten to one."[5]

And few dared to embark, in the true spirit of surgery, upon such an undertaking:—

> "And yet we ventured: for the gain proposed
> Choked the respect of likely peril fear'd."[6]

Now, however, the anatomical and pathological labours of many workers have done much to remove the difficulties that beset the path of the surgeon in conducting the operation. Just as well-surveyed waters, even though narrow and tortuous, may be calmly and confidently, though never heedlessly navigated, so now the surgeon, well acquainted with, and relying on, the chart of knowledge which is so freely available to all may safely traverse "the perilous narrow ocean[7]" of the complete mastoid operation and attain in almost every case his object—namely, the complete ablation of the disease from which his patient is suffering.

The surgery of the temporal bone is, as Greig Smith so well said of another department of surgery, "no longer a field for legitimate and versatile experiment; certain fixed and useful laws and customs have been laid down by the dearly bought experience of great men: the ..... surgeon ought to begin fully equipped with such knowledge as has been gathered for him."[8] Alas, it is not always so, and even now some timid soul, "getting into a sea far beyond his sounding,"[9] turns back before the voyage so essential to the life of his patient is completed, while perhaps another,

> "Most ignorant of what he's most assured,"[10]

founders his patient upon a charted rock. The vessel is posted at Lloyds as "missing" but the pilot, a practised swimmer, rarely suffers the same fate.

I am convinced that the operation should be undertaken whenever the ear suppuration *persists* in spite of careful antiseptic treatment carried out through the meatus. For not only is extension of the disease to the temporal bone, with all its dangers, then almost a certainty, but it must not be forgotten that neglected chronic suppuration in all

[1] Carlyle: The Hero as Poet.

[2] Berliner Klinische Wochenschrift, 1889. Quoted from Allen: "The Mastoid Operation."

[3] Berliner Klinische Wochenschrift, April 22nd, 1889.

[4] Die Eiterigen Erkrankungen des Schläfenbeins.

[5] King Henry IV., Part 2, Act i., Scene 1.

[6] Ibid.

[7] King Henry V., Prologue.

[8] Abdominal Surgery, fifth edition vol. i., p. 133.

[9] Carlyle: The Hero as Man of Letters.

[10] Measure for Measure, Act ii., Scene 2.

parts of the body, including the tympanum, may become secondarily infected and give rise to a fatal form of blood infection without any infection of bone.

"And danger, like an ague, subtly taints
Even then when we sit idly in the sun."[11]

Such measures as curetting away granulations, removal of ossicles, polypi, &c., are, I consider, except in quite exceptional cases, not only inefficient but dangerous. By the complete operation alone, is it true to say

"Out of this nettle, danger, we pluck this flower, safety."[12]

The *persistence* of the disease is therefore the indication for operation, for

"If we suffer
. . . . . this contagious sickness,
Farewell all physic: and what follows then?
Commotions, uproars, with a general taint
Of the whole state."[13]

Operation should not be deferred until intracranial complications are present or are immediately threatened. It is true that many patients with chronic otorrhœa pass through even a long life without experiencing any grave inconvenience therefrom, but it is also evident that anyone suffering from chronic ear suppuration is always in danger of a grave, or even fatal, illness which

"Only stays but to behold the face
Of that occasion that shall bring it on."[14]

No surgeon would advise that operative treatment for the cure of caries of the sternum should be deferred until the pericardium had become infected or the patient had commenced to develop the symptoms of general infection. Nor would any surgeon postpone the operative measures necessary to heal a cavity in the head of the tibia until the abscess had made its way into the knee-joint. The operation here dealt with is that required for the cure of chronic disease. The same operation is not called for in *acute cases*. In these a local operation limited to the mastoid usually suffices to effect a cure and the tympanum and meatus should be left undisturbed. The posterior wall of the meatus should not, in these acute cases, be interfered with except in that small group of patients in whom the mastoid is involved by infection, voyaging through the posterior wall of the osseous meatus. The surgeon here operates with the same object as in acute suppuration in a joint—namely, to arrest the inflammatory process by free drainage and antiseptic flushing. In the case of the tympanum another reason exists for the operation—namely, the prevention of the destruction of the delicate structures in the middle ear and the conservation of the function of the organ of hearing.

It must be remembered, however, that in many cases of acute disease simple opening of the antrum is inefficient; pus is frequently found in cells at the extreme apex and as far back as the posterior edge of the bony groove for the lateral sinus. The whole mastoid then requires ablation so that even when performed for acute disease the operation becomes a very extensive one. Nevertheless, in these cases also the tympanum should be preserved. The operation for the cure of chronic otorrhœa is always an extensive one; complete removal of the disease is the first essential to complete success. It cannot be too explicitly affirmed or too clearly comprehended that imperfect performance of the primary or bone operation is the chief reason of failure of the subsequent treatment, whether this is carried out with grafting or without.

The attempt to cure cases of chronic otorrhœa without removing the bridge which overhangs the communication between the antrum behind and the attico-tympanal cavities in front is to act in opposition to this fundamental principle of surgery. It is my desire again specially to accentuate this cardinal fact, because it has happened to me even recently to have to perform the complete mastoid operation months and years after operation had been done, leaving the bridge unremoved. On the inner side of the bridge I have observed infective granulations, caries, small encapsuled abscesses, and an open Fallopian canal. There is no part of all the operation which requires more care and thoroughness in the extirpation of disease than here.

"This fester'd joint cut off, the rest rests sound;
This, let alone, will all the rest confound."[15]

[11] Troilus and Cressida, Act iii., Scene 3.
[12] King Henry IV., Part 1, Act ii., Scene 3.
[13] King Henry VIII., Act v., Scene 2.
[14] King Henry IV., Part i., Act i., Scene 3.
[15] King Richard II., Act v., Scene 3.

The outer wall of the attic is formed by the bone of the roof of the osseous meatus. The thickness of the bone here varies greatly, but it contains cells which communicate with those of the mastoid process and with the attic. The removal of the outer wall of the attic, therefore, not only enables disease of this cavity to be extirpated, but it provides for the extirpation of infective granulations and pus which are likely to have extended from the attic into the cells of the roof of the meatus. Unless this plan of operation is systematically and carefully carried out diseased tissue will escape the curette and remaining unmolested by the operator will be a potent influence antagonising the successful issue of the operation. Indeed, the greatest care and circumspection are required in every step of the operative procedure on the bone for, to quote once again from Greig Smith, "Not only must no part of the work be hurried over or scamped, but every detail must be finished and rounded off with a thoroughness as minute and genuine as if that detail were the turning point of success. And, practically, it is a fact that imperfect attention to almost any detail may result in a catastrophe."[16] The tendency of modern surgery is against the performance of type or formal operations: for example, we do not perform formal excision of the knee-joint; we endeavour to remove all disease. So, also, in the complete mastoid operation we perform no formal operation, but we follow and eradicate the disease to its utmost limits.

The first, or bone operation, is not completed till the tympanic end of the Eustachian tube has been curetted. The ulceration may extend into the tube and collections of inspissated pus may be found in it. Not only is it most necessary to remove any disease which may here be harboured, but the subsequent healthy granulations which spring up will close the tube and the surgical occlusion of the tube thus attained cuts off the mastoid operation cavity from any infection from the throat. It is to be remembered, too, that the function of the Eustachian tube, as the channel for the aeration of the tympanic cavity, is now no longer required.

Jansen[17] makes every endeavour, in performing the complete mastoid operation for chronic otorrhœa, to conserve healthy ossicles, and in from 5 to 10 per cent. of his cases he does so. His advice is, when there is good hearing leave the ossicles, for dislocation of the malleus and incus will disturb the labyrinth and cause loss of hearing, but if there is much deafness, remove the ossicles and hearing will improve; and further, if there is deafness in the opposite ear while the hearing in the ear about to be operated on is fairly good, leave the ossicles whenever it is possible to do so. The conservation of the ossicles in some of these chronic cases is made possible by the fact that, although the disease has originated in the tympanum, it is, in its later stages, more advanced in the antral region so that the tympanum may, in these later stages, be merely a passage for the exit of pus. On the other hand, it may well be asked of what possible use can the ossicles be when they must become bound together by adhesions as cicatrisation takes place. Politzer, Schwartze, and other great authorities always remove the malleus and incus. My own practice is to remove the malleus and incus and, when possible, to leave the stapes. At the grafting operation it has been my custom to make a hole in the graft through which the stapes projects.

Whether the hearing will be better or worse after the radical mastoid operation cannot be pre-determined. In some cases there is a great improvement in hearing. Yet this question, about which all patients are naturally anxious, cannot be answered by the truth-loving surgeon. He is bound to confess his ignorance, for post-suppurative deafness frequently depends upon the filling of the niche or recess on the inner tympanic wall, in which the base of the stapes is fixed, with new connective tissue which bars the entrance of auditory vibrations and the presence of which can only be determined by making a microscopical section through the oval window. The same scar-tissue obstruction may also form over and block the round window.

The successful conduct of the treatment for the cure of chronic otorrhœa requires the fulfilment of two conditions: first, the removal of all disease by operation. We may say at once and deliberately that, in the great majority of the cases, all the disease can be removed. Secondly, the healing of the large bone wound from the bottom. Greater difficulty

[16] Greig Smith: Op. cit., p. 132.
[17] Personal communication.

has been experienced in the fulfilment of this second condition. Systematic tamponning, usually through the unsutured mastoid wound, has been employed for this purpose. All who have carried it out are aware how painful it is to many patients and how tedious it becomes for both the surgeon and the patient. Politzer[18] says: "The duration of the after-treatment varies from six weeks up to nine months and over. The mean duration varies between three and four months." Grunert[19] says: "In exceptional cases cicatrisation proceeds so smoothly that the entire cavity is healed in from four to six weeks; on an average, cicatrisation is complete in three to four months. There are, however, specially unfavourable cases in which, either as a result of constitutional peculiarities or of particularly unfavourable local conditions, this period of time becomes considerably extended."

Passow,[20] in a thoughtful paper on the Retro-auricular Opening after the Radical Operation for Chronic Middle-ear Suppuration, gives statistics from various clinics showing that the average duration of treatment by the tamponning method varied from four to ten weeks in the most favourable instance up to 36 weeks and over. Respecting the most favourable figures quoted he, however, says: "Though Hartmann, in the most recent edition of his text-book, when referring to the radical operation, remarks laconically that the healing takes from four to ten weeks; this can really only be taken *cum grano salis*." Most striking, however, are the figures which he gives respecting the cases operated on in his own clinic at Heidelberg. Of 44 recovered cases, 18 were operated on by different methods but all without Thiersch grafting. In these the average duration of the after-treatment was 20 weeks. The other 26 cases were operated on by a method described in the paper of which Thiersch grafting forms a part. In these the average duration of treatment was 11 weeks. One healed in three and a half weeks, but the majority took over three months to heal. A visit which I recently paid to several continental clinics in which I saw hundreds of cases in various stages of treatment by the tamponning method gave me the impression that the above-quoted statements took rather a too favourable view of the results of that treatment. I should say that in the majority of cases treatment was continued for six or seven months. I am therefore confirmed more than ever in the opinion that the method which I described before the Royal Medical and Chirurgical Society presents great advantages over tamponning alone and over the methods of grafting hitherto practised by myself and others,[21] and that it indicates the direction in which further advance may yet be anticipated. The surgeon who does not use the method of grafting in these cases seems to me like one

> "Who half through
> Gives o'er and leaves his part created cost
> A naked subject to the weeping clouds."[22][23]

In general surgery skin grafting is carried out in order to hasten the cicatrisation of a wound having a large superficial area. It cannot be too strongly emphasised that the sole object of the grafting operation is to expedite the healing of the wound—an object which is the desire of the patient and should be the chief aim of the surgeon. The wound left after the complete mastoid operation is not only of large superficial extent, but its floor is in great part raw bone, a tissue which heals much more slowly than does soft tissue and is, moreover, much more susceptible of re-infection during the process of healing. The surface of the wound is not flat, but is so shaped that granulations which are allowed to become exuberant may cross the cavity and so shut off spaces which are unhealed and which become a fertile cause of persistent discharge and so of failure of the operation. Jansen in doing the complete mastoid operation applies immediately several small grafts, completely sutures the mastoid flap, and treats the case by tamponning through the enlarged meatus. He objects to grafting the tympanum on account of its numerous recesses, which he considers make the proper application of a graft impossible, and also because the graft may throw a veil over the two windows and so produce a loss of hearing. This is probably true of some cases, but it is not true of the method of grafting which I now strongly urge as a marked improvement on the old method which left a graft of variable thickness to be absorbed and replaced by an equally thick sheet of scar tissue. The ideal plan of treatment would involve carrying out in one operation all the following details: (1) the complete removal of the disease; (2) the fashioning of a flap from the membranous meatus without causing deformity of the concha; (3) the epithelial grafting of the inner and outer surfaces of the operation cavity; and (4) the complete suture of the mastoid wound—the subsequent after-treatment being carried out by dry gauze tamponning through the meatus.

This ideal method of procedure is in my judgment not feasible except in certain quite exceptional cases. The wisdom of completing the operation at one sitting cannot be justified when it is remembered that in many cases the wound is foul and that the epithelial grafting is best done and is most likely to succeed when a surgically clean surface has been prepared. The administration of anæsthetics has now been brought to such a high standard of perfection that in skilled hands it involves no more risk than a short railway journey.

> "Things done well,
> And with a care, exempt themselves from fear."

It is far better for the patient that the anæsthetic should be administered a second or even a third time than that there should be any approach to hurry and want of thoroughness in carrying out those measures which make for perfection in the treatment of a disease which may, and still too often does, end fatally. Moreover, I believe that there is much more danger in the undue prolongation of anæsthesia than in the repeated administration of an anæsthetic. The repetition of the anæsthetic is not a new procedure recommended for the first time by me, but has been a necessary part of the treatment of chronic otorrhœa in the past. Even now a great many operators leave the mastoid wound open and after several months administer an anæsthetic to close the retro-auricular opening. The ultimate and complete success of the operation should never be jeopardised merely for the sake of the brilliancy of completing all that is required in one sitting. Therefore, although the second or grafting operation may in a few instances follow immediately as a direct continuation of the first I have usually allowed an interval of a week or longer to intervene between the operation for the removal of the disease and the grafting operation. In some cases, such as those of brain abscess or of lateral sinus pyæmia, I have postponed the grafting operation for a month or more. These are specially foul cases or cases in which the graver intracranial disease must first be mastered. After any interval the surface must be prepared anew for the reception of the graft by the removal of every visible trace of granulation tissue. In such instances we are indeed obliged to

> "Heal the inveterate canker of one wound
> By making many."[25]

In many other operations the prospect of complete success is much increased by operating in stages. As an illustration of this point I may mention that I have found great advantage in performing the operation of excision of the knee in weakly children in two or even three stages. The operation for tumour of the brain is invariably conducted in two stages and Professor Jalaguier, with whom I agree, speaking of the cases of acute obstruction in which excision of a portion of bowel is called for, says: "The operation is performed in two stages; it is less brilliant than complete operation at one sitting, but it is infinitely less dangerous."[26] The same principle should, as a rule, be carried out in operating for strangulated hernia. The acute condition threatening life should first be dealt with and later an operation for radical cure can be performed.

The attempt to do too much at one time is to be deprecated not only in the practice of surgery but in the undertakings of other professions. Victory, in the great operations whether of surgery or of war, is to be gathered laboriously step by step, stage by stage. In support of this theme I may appeal from my own humble experience to the voice of Britain's most illustrious sailor. Nelson ordered two of his frigates (the *Phœbe* and the *Amazon*) to cruise together.

[18] Politzer: Lehrbuch der Ohrenheilkunde, fourth edition, p. 470.
[19] Encyklopädie der Ohrenheilkunde (Blau), p. 234.
[20] Zeitschrift für Ohrenheilkunde, Band xxxii., pp. 215, 216, and 223.
[21] Siebemann: Berliner Klinische Wochenschrift, 1893, No. 1 and No. 35. Reinhardt: Versammlung Deutscher Naturforscher und Aerzte in Düsseldorf, 1898. Jansen: Verhandlungen der Deutschen Otologischen Gesellschaft, 1898.
[22] Weeping granulations.
[23] King Henry IV., Part 2, Act i., Scene 3.
[24] King Henry VIII., Act i., Scene 2.
[25] King John, Act v., Scene 2.
[26] Traité de Chirurgie, Duplay-Reclus, vol. vi., p. 47.

Previously to their going away he gave to Captain Capel and Captain Parker several injunctions in case they should get an opportunity of attacking two of the enemy's frigates. The principal one was that they should not each single out and attack an opponent but that they should endeavour together to take one frigate; if successful to chase the other; "but if you do not take the second, still you have won a victory and your country will gain a frigate." Then, half laughing and half snappishly, he said kindly to them as he wished them good-bye: "I dare say you consider yourselves a couple of fine fellows, and when you get away from me will do nothing of the sort but think yourselves wiser than I am."[27]

I claim that in our art, and in particular at the present moment in the mastoid operation, Nelson's illuminating principle of executing a great task by doing each stage thoroughly before proceeding to another is the sure guide to success. On the other hand, it may be that in the future the operation we are now considering may be replaced by a simpler and more perfect method which will enable the operator in almost all cases to complete all that is necessary at one sitting. We are now able to complete at one sitting some operations, such as gastrostomy, colotomy, and the removal of hydatid of the liver, which until recently were always performed in stages. For the present, however, the safeguards and advantages afforded by operating for temporal bone disease in stages are "like temporary props of an edifice; they must not be removed until we have built a firm wall in their stead."[28]

The plan of treatment which I now practise is carried out in three distinct stages; of these the first two are those which are described in my former paper, but with certain alterations in the details, and the third is an additional step which I believe to be of great importance. The modifications introduced are:—I. *In the first stage of the operation:* 1. The use of both burr and gouge for the bone operation. 2. In dealing with the membranous meatus; (*a*) the flap is fashioned out of the meatus alone so that no deformity of the concha is produced; (*b*) the cartilage is removed from the flap; and (*c*) the flap is sutured to the raw surface of the mastoid flap with gossamer silkworm gut which can be removed at the second operation or with fine catgut which soon becomes absorbed.

I formerly advised the use of the electrically driven burr almost to the exclusion of the gouge, but in the varying conditions of the operation I like to feel free to use burr, gouge, or chisel as may seem best adapted for the immediate purpose in hand. Whenever the motor is available the burr should be used off and on during the course of the operation and at its close it is valuable for neatly smoothing down the bone surface so as

> "To leave no ruts nor botches in the work."[29]

Further, there can be no doubt that when the burr is used the patients are far less prone to sickness than they are after operations carried out entirely with gouge or chisel. The cut in the concha which was recommended in my previous paper had not in the cases on which I operated produced an unsightly deformity. My attention was called to the point by seeing patients who had been operated on by others and who asked "for something to be done to close Ballance's hole." One such case presented a "fearful hollow"[30] of a meatal aperture in which two fingers could be placed. Such results were facetiously described by an eminent surgical friend as "a new form of flowerpot constructed on the side of the head." I found it quite easy to diminish such openings by simply throwing forward the mastoid flap and then shifting the conchal flap from the inner surface of the mastoid flap back to its original position.

The way in which I now deal with the membranous meatus is as follows. The floor of the membranous meatus is divided from within outwards right out to the concha. The pinna is then pulled backwards and the tragus forwards and the knife is carried, not as was formerly advised through the concha, but through the posterior half of the extreme outer end of the meatus, just at its line of junction with the concha. The flap thus fashioned is turned upwards and the cartilage is removed from it. It is then fixed with stitches to the raw surface of the mastoid flap. The inner corner of the flap has always to be cut off as it gets in the way of the free removal of the outer wall of the attic. A triangular piece of cartilage is next removed from the floor of the meatus and the skin which was over it, and which is now loose, is stitched to the raw tissues in the neighbourhood in the same manner as was adopted for the main meatal flap. When healing is complete, though there is a real enlargement of the conchal opening of the meatus, yet there is no visible sign of the enlargement and no deformity. The cut edge of cartilage should be protected by suturing as far as possible the skin over it. This is important in view of the always tedious healing of an exposed cut edge of cartilage, and especially is it needful in foul cases, as infective perichondritis (which though very uncommon in this country is not infrequently met with in some foreign clinics) may occur and give rise to much trouble and deformity.

II. *In the second stage of the operation:*—1. A crescentic portion of skin is removed from the mastoid flap of a width sufficient to adjust the pinna to its proper position on the side of the head. 2. An ordinary razor moistened with sterile normal saline solution is used instead of a special instrument moistened with a special fluid. 3. The main mastoid cavity is not now grafted. The graft is only allowed to cover the inner wall of the tympano-attic-antral cavity. An additional graft is placed on the corresponding part of the inner surface of the mastoid flap. 4. The graft is maintained in position by means of tiny mops of sterilised wool covered with gauze. These mops are dusted with a non-irritating and drying sterilised antiseptic powder. Gold leaf is no longer used. If previously to doing the second operation the pinna is pushed upwards a crease will be produced in the mastoid flap. This generally affords a sure guide to the exact amount of skin, crescentic in shape, of the mastoid flap which should be removed in order to adjust the pinna to a symmetrical position on the side of the head. The removal of the crescentic portion of skin has a further advantage in that it brings the scar close to the attachment of the pinna to the side of the head. This, and careful stitching of the mastoid flap with gossamer silkworm gut, combine to place the scar under cover of the pinna and to attain that "almost traceless cicatrisation of the retro-auricular wound"[31] which should be the aim of the surgeon, especially when his patient is a woman. The operation cavity is cleansed and bleeding is arrested by peroxide of hydrogen and warm sterile saline solution.

The graft is cut with an ordinary hollow-ground razor of suitable size, moistened with sterile normal saline solution only, without admixture of alcohol or glycerine, which, though facilitating the cutting, has seemed to me to cause thickening of the graft. The graft is applied to the inner wall of the tympanum, attic, and antrum, and should slightly overlap the vertical boundaries of these cavities. I never allow it to extend below the *lower* margin of the antrum, for otherwise a needlessly large permanent cavity would be formed. Moreover, this part will rapidly enough heal by the approximation of the raw inner surface of the mastoid flap to the granulating bone surface. The graft is held in place against the bone by the application of small, dry, sterile cotton-wool mops dusted with a non-irritating antiseptic powder. The first of the little plugs is placed in the lower part of the tympanum and often extends into the upper part of the Eustachian tube, the next is placed against the upper part of the inner wall of the tympanum and attic, and the next against the inner boundary of the aditus and antrum. About seven plugs are usually employed. A piece of sterilised gauze is then placed over all to prevent displacement. Another graft is now placed on the outer boundary of the operation cavity—namely, the inner surface of the mastoid flap, corresponding in extent to the tympano-attic-antral cavity. It is also a good plan to apply another small graft and to arrange it so as to cover the raw edge of the posterior margin of the meatus, for here the cartilage is exposed without a complete skin covering.

Until some nine months ago the plugs covered with powder were left *in situ* for about two weeks and then dry gauze tamponning was carried out for a further period of three or four weeks—i.e., until the wound had healed. Now, however, I carry out:—

III. *The new third stage of the operation* which consists *in the deliberate removal of the dead portion of the graft.* This can be done through the meatus, but it is best and most accurately performed under an anæsthetic. In some

[27] The Influence of Sea Power upon the French Revolution and Empire, Mahan, vol. ii., p. 45.
[28] Wilhelm Meister's Lehrjahre, Book v., Chapter 4. Carlyle's translation.
[29] Macbeth, Act iii., Scene 1.
[30] Romeo and Juliet, Act iii., Scene 5.
[31] Politzer, op. cit., p. 465.

cases after the operation had been previously performed and had failed I have kept the mastoid wound open; in these cases the third stage of the operation is completed and the wound is immediately sutured.

The third stage of the operation consists, as already said, of the removal of the *main portion of the graft which is dead*. After washing with warm sterilised normal saline solution the dead part of the graft comes away as a distinct membrane. The cavity is then gently dried with sterilised wool and on careful inspection can be seen to have a surface of pearly smoothness which is in fact a surface of epithelium. Anyone not familiar with this separation of the dead part of the graft might think that the graft had failed. The separation of dead from living tissue is, as we all know, by aseptic molecular necrosis or by suppuration. In epithelial grafting operations in such a cavity as this which can hardly remain aseptic it is not surprising that when the graft is thick the separation occurs by suppuration. I therefore think that the removal of the dead part of the graft as a deliberate measure, either by opening up the flap again or by irrigation through the meatus, is a distinct gain in treatment. All dead tissue is removed, the thinnest conceivable layer of epithelium covers the fenestra, and the final healing is markedly hastened. Though, of course, a thin graft is to be desired yet with this improved method an extreme degree of tenuity of the graft becomes of less importance. The thicker the graft the more necessary is it to remove the slough and the greater the benefit that is thereby gained. After the cavity has been dried the small plugs covered with powder are again inserted. This tamponning cannot be perfectly effected unless the mastoid flap has been thrown forwards, and especially is this true of the lower part of the tympanic cavity which often lies far below the level of the osseous meatus. At the end of a week these plugs are easily removed through the meatus by means of speculum and forceps. This is accomplished without pain as the bone surface is healed. The further treatment consists in dry gauze tamponning until the gauze returns unstained. The last place to heal is a cartilage granulation which usually presents just inside and behind the lower margin of the meatus. Last year I saw Herr Geheimrath Professor Trautmann employ acetate of aluminium gauze for tamponning and in order to check exuberance of granulations the surface was painted with trichloracetic acid (10 per cent.) two or three times a week. This plan or the employment in the same way of solution of chloride of zinc (40 grains to the ounce) I have found to be admirable.

To sum up, the scheme which I now adopt for dealing with chronic suppuration in the temporal bone, stated briefly, is: (1) The removal of the disease and the fashioning of the meatal flap; (2) one week later the epithelial grafting operation; (3) a few days (from the sixth to the ninth day) after this, and the earlier the better after the graft has taken, the removal of the dead portion of the graft as a deliberate measure; and (4) dry gauze tamponning through the meatus until the gauze comes away unstained. In three weeks the inner bony boundary is dry and any moisture which appears on the plugs later is from the inner surface of the mastoid flap. The critical part of the healing process is thus early completed. What happens afterwards is of less moment. In from five to six weeks from the first operation, in the majority of cases, the operation cavity is soundly healed. I know of no other method which can be relied upon to give such results.

The operation for the cure of chronic suppuration in the temporal bone is practised abroad almost exclusively by highly skilled operators who have devoted special attention to the subject. In this country it would appear to be considered within the competence of all. In skilled and careful hands it is attended by no more risk than other great operations, but to quote a remark from a French book on Surgery about another operation, if it is undertaken by "the rash, the ill-informed, and the ill-equipped,"[32] there is grave risk of disaster or injury to the patient, or perhaps still greater risk of failure to cure the disease, from the operation being ill-conducted and incomplete.

Again, great operations are not brought to a successful issue by those who, like Bunyan's "Mistrust" and "Timorous," turn back when confronted with the "Hill Difficulty," saying one to another: "The further we go the more danger we meet with; wherefore we turned and are going back again."[33] Nor are the over-confident in much better case for

> "When men think they most in safety stand
> Their greatest peril often is at hand."[34]

The operation for the removal of chronic suppuration from within the temporal bone should therefore only be undertaken when the operator has carefully and specially prepared himself for its performance. I have known it to be more difficult to complete *perfectly* and to require a more sustained mental effort than the operation of resection of a portion of intestine, of removal of a gall-stone from the common duct, or of removal of a tumour of the brain.

> "Much more in this great work,
> (Which is almost to pluck a kingdom down
> And set another up) should we survey
> The plot of situation and the model;
> Consent upon a sure foundation;
> Question surveyors; know our own estate,
> How able such a work to undergo."[35]

It must not be supposed that in my view every case calls for the formal execution of every detail with rigid uniformity. Far from it. Every case must be treated upon true surgical principles, but the details necessarily vary with the exact requirements of each particular case. Before actual personal experience is acquired the experience of others will be given perhaps more than its due weight; as personal experience increases, so will the operator perceive how best he may vary the plan that has been imparted to him. Only a part of the art of surgery can be taught, the surgeon needs it all.[36] "Imitation is born with us, what *should* be imitated is not easy to discover."[37]

The observations contained in this paper are only offered as a small personal contribution to the progress of a great and pressing subject in surgery and by no means as a final settlement of the matter.

> "Assumptions hasty, crude, and vain
> Full oft to use will Science deign.
> The corks the novice plies to-day
> The swimmer soon shall cast away."[38]

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DESCRIPTIONS OF FIGURES ILLUSTRATING THE COMPLETE MASTOID-OPERATION. (TWO-THIRDS NATURAL SIZE.)

*First Stage.*

Fig 1.—The dark continuous line shows the incision recommended. Whatever incision is chosen it is essential that the area of operation should be freely exposed. The portion of skin between the dotted and the continuous lines is removed at the final operation. This varies in width and the objects attained are (1) the replacement of the pinna which tends to drop downwards and forwards, and (2) the final line of cicatrisation lies more under cover of the pinna and nearer its attachment.

Fig. 2 shows the antrum opened and the posterior surface of the membranous meatus exposed. The fashioning of the flap of the membranous meatus is done at this stage of the operation so as freely to uncover the bone forming the outer boundary of the attic.

Fig. 3.—The meatal flap. The posterior half of the inner extremity of the meatus is displaced outwards. The floor of the meatus is seen being divided by the knife right out to the concha.

Fig. 4.—The meatal flap. The dotted line shows the line of incision at the junction of the posterior half of the outer extremity of the membranous meatus with the concha. The outer extremity of the meatus is enlarged but there is no visible deformity.

Fig. 5.—The meatal flap. The knife is shown making the cut described under Fig. 4.

Fig. 6.—The meatal flap. The incisions in the membranous meatus completed.

Fig. 7.—The meatal flap. The flaps above and below freed from cartilage are shown stitched to the raw surface of the mastoid flap. The dotted line shows the inner angle of the upper flap which must be cut off in order to expose the outer wall of the attic and which if left gets in the way of the burr or gouge.

Fig. 8 shows the first stage of the operation completed.

*Second Stage.*

Fig. 9 shows the graft on a lifter placed over the bone cavity. It will be noticed that the sutures of the meatal flaps have been removed.

Fig. 10 shows the graft lying over the bone cavity, the lifter having been taken away. The air is now about to be sucked by means of a pipette from underneath the graft.

Fig. 11 shows the graft lying against the inner walls of the tympano-attico-antral cavities and slightly overlapping their vertical boundaries. *Note* that the graft is not allowed to pass below the lower margin of the antrum. On the outer boundary (inner surface of the mastoid flap) two smaller grafts have been applied. *Note* that a portion of each graft has been coaxed round the edges of the external meatus—the posterior half of which is a raw cut edge.

Fig. 12 shows the portions of the two grafts on the inner surface of the mastoid flap appearing on the external aspect of the meatus. They

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[32] "Téméraires, ignorants, et mal outillés," Traité de Chirurgie; Duplay-Reclus, tome viii., p. 51.

[33] The Pilgrim's Progress.

[34] Drayton: The Barons' Wars, Canto vi., v. 44.

[35] King Henry IV., Part 2, Act i., Scene 3.

[36] "It is but a part of Art that can be taught; the Artist needs it all." Wilhelm Meister's Lehrjahre, Book vii., Chapter 9. Carlyle's translation.

[37] Ibid.

[38] A. H. Clough: The Higher Courage.

are thus caused to cover the raw cut edge which forms the posterior half of the new meatus.

*Third Stage.*

Fig. 13 shows the graft sloughs removed on the seventh day. The large one is from the bone cavity. They were washed in salt solution and then sketched. The edges are grey and gangrenous.

Fig. 14 shows the graft sloughs removed on the sixth day. They were drawn immediately after being removed. Their edges are black and gangrenous. The large slough is from the bone cavity and shows a cast of the tympano-attic cavity.

# NERVE SUTURE AND NERVE REGENERATION.

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THE question about the changes that take place in a nerve when it is interrupted has for more than half a century been the topic of numerous investigations. Reading through the literature, however, one gets the impression that there has been accumulated a fund of observations—gained partly by new and excellent methods of investigation, partly by researches in the clinical material—that has made the question more acute. In this place it will only be possible to mention shortly the different views.

Waller showed that when a nerve is cut degenerative changes will take place in the whole of the peripheral part of it. Views have been divergent as to the pathological significance of these changes and which parts are essentially touched by them. Waller and Bruch suppose that the nerve is totally ruined, while Schiff and Philipeaux and Vulpian think that the degeneration only touches the myeline sheath while the axis cylinder is left. Neumann and Eichhorst suppose that the myeline sheath and axis cylinder are altered by chemical change to a homogeneous mass out of which by differentiation new nerve fibres are formed. Most observers have found that the sheath of Schwann is not ruined, while the myeline sheath and axis cylinder in the whole peripheral and part of the central segment are broken into smaller and smaller pieces that disappear by re-absorption or phagocytosis. At the same time the nuclei of the sheath of Schwann become elongated and arrange themselves parallel with the nerve fibre; they become surrounded by protoplasm that takes the place of the myeline sheath and the axis cylinder, and as a result there will be protoplasmic bands with nuclei. According to the view of Waller a nerve is totally ruined when severed from its trophic centre. He therefore presumed that the regeneration only can occur by the growing out from the central part of the new fibres. Ranvier contends that the axis cylinders of the central end grow into the old sheaths of Schwann in the peripheral part which only formed a conductor for the new fibres. With this view Vanlair, Howell and Huber, Stroebe, Kolster, Gurwitsch, and others agree. On the other side it has been asserted that new fibres are formed in the peripheral part, either by the transformation and fusion together of cells or by the differentiation of the protoplasm that surrounds the nuclei of the sheath of Schwann. The new-formed fibres grow secondarily together with the fibres from the central end. Philipeaux and Vulpian found that regeneration might occur in the peripheral part even if there were no communication with the central end. By this it seemed that the question of the regeneration of the nerve was finally settled. Vulpian, however, afterwards came to the conclusion that the regeneration was due to connexion with the central organ by anastomotic fibres. Lately, however, Kennedy, Bethe, and Ballance and Stewart reasserted that nerve fibres can be formed without connexion with the central organ. It soon proved difficult to bring Waller's interpretation about the dependence of the nerve on its connexion with the trophic centre to correspond with clinical experience. Paget has reported two cases where sensibility was observed ten and 14 days respectively after the nerves had been cut and he therefore concludes that the nerves had been united without degeneration having taken place, as there was no evidence that nerve fibres could be formed so rapidly. Numerous other instances of early restoration of function as examples of healing by first intention of different nerves have been published. Schiff and Bruch supposed that degeneration was not necessary; but almost all later observers have come to the conclusion that it always takes place after severing the nerve. Gluck by experiments on animals found that the nerves could conduct impulses after 70 hours. By microscopical examination he found only granulating tissue at the place of union, and therefore he concluded that this might be conducting, supposing that the granulations might contain "specific nerve granulations." In this scarcely anyone has agreed with him so far as can be seen. On the contrary, attempts have been made to explain the early return of sensation by the conduction of the impressions through other nerve courses, through nerve nets or nerve anastomoses or recurrent sensory fibres. Or the explanation has been supposed to be that the same area can be innervated from different nerves.

These involved circumstances have been thoroughly discussed by Leegaard, who insists that the symptoms caused by the interruption of a nerve are contingent on the pathological conditions of the interruption and that no assistance from other nerves takes place. To illustrate the conditions that are taking place after injury to the peripheral nerves a series of cases will be related. Two of the cases were treated at the Rigshospitalet, Christiania; the third case was kindly given to me by Dr. Jakob Roll. The electrical examination has been done at the ward for nervous diseases.

CASE 1.—A girl, 15 years of age, was received into the hospital on Nov. 13th, 1899. While at work she came too near a knife-machine and received a wound 12 centimetres in length over the middle of the forearm. Most of the flexor muscles were cut through and on the radial side the wound went into the bone. The radial and ulnar arteries, the superficial branch of the radial nerve, and the ulnar nerve were cut through. The nerves were sutured with thin silk. On the 16th the patient could feel pricking with a needle in the area both of the radial and of the ulnar nerve. On account of the bandage it could only be tested on the fingers. On Dec. 5th she could bend and stretch the fingers, though incompletely and slowly. She could feel pricking with a needle over the ulnar area as pressure and over the radial area as pain.

CASE 2.—A man, 26 years of age, was seen on August 27th, 1899. He was cut with a knife over the left forearm. The tendons of the palmaris longus, the flexor digitorum sublimis, and the flexor carpi ulnaris, and the ulnar nerve and artery were cut. The patient had no sensation in the area of the ulnar nerve. The central and the peripheral parts of the nerve were isolated and sutured with three silk sutures. The wound healed by first intention. On Sept. 16th the patient was still anæsthetic in the little finger but had good sensation in the rest of the ulnar area.

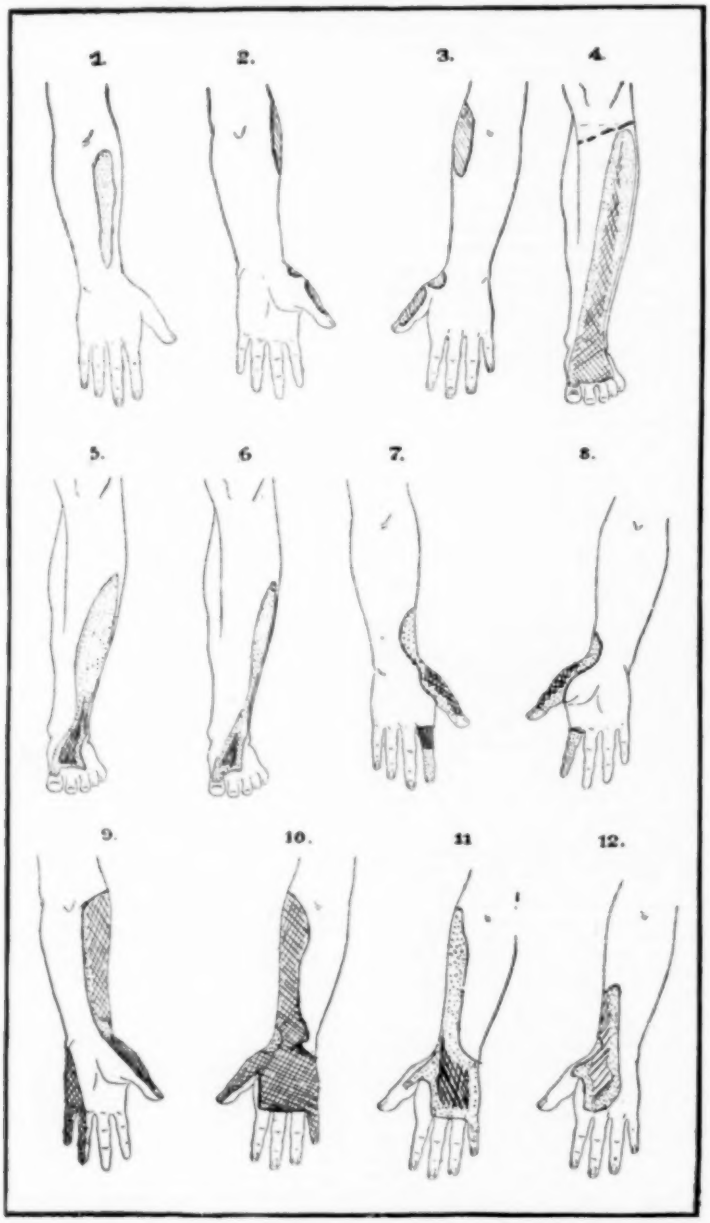
CASE 3.—A boy, four and a half years of age, was seen on June 18th, 1902. The left peroneal nerve had been cut just below the knee. It was immediately sutured. On the next day the patient asserted that he could feel a touch on the upper part of the foot with the finger. On the 20th he could feel when the upper part of the foot was touched with a pad of cotton wool. On the 26th he could feel when the extensor side of the toes and a little of the upper part of the foot were touched gently. The centre of the upper part of the foot felt pricking with a needle, but less than the corresponding part of the other foot. The foot and toes were flexed and he could not extend them. The sensation was asserted to have been better on the 19th than it was on this day.

CASE 4.—A male patient was admitted into the hospital on Dec. 7th, 1901. 14 weeks previously he had had a complicated fracture of the middle of the upper arm. After some time had elapsed it was noticed that he could not stretch the wrist and could scarcely stretch the arm at the elbow. He also seemed to have less sensation on the dorsal side of the right forearm and hand than on the left. Sensation had improved a little during the previous weeks. On admission the hand could be stretched 25° in the wrist when the fingers were kept flexed. The fingers could be stretched in the distal and in the middle phalangeal joints but not in the metacarpo-phalangeal joint. He could supinate and flex the arm at the elbow but with little power. The extensor muscles were atrophied. The radial[1] (musculo-spiral) nerve gave no reaction to the galvanic or the faradic current. There was slight anæsthesia over the upper two-thirds of the extensor side of the forearm. (Plate I., Fig. 1.) The operation was performed on Dec. 13th, 1901. The radial (musculo-spiral) nerve was laid bare on the middle

[1] It will be seen that Dr. Henriksen uses the term "radial nerve" to express both the musculo-spiral nerve (nervus radialis) and its continuation, the radial nerve of English nomenclature. We have therefore added the words "musculo-spiral" in those places where Dr. Henriksen refers to that nerve under the term "radial."—ED. L.

of the extensor side of the upper arm. It was tightly fixed to the fracture by scar tissue and it was somewhat thicker than normal above and below the place of fixation, where it was somewhat narrower; otherwise it seemed to be uninjured. The scar tissue was cut through and the nerve set free. A branch of the nerve trunk (nervus cutaneus

PLATE I.

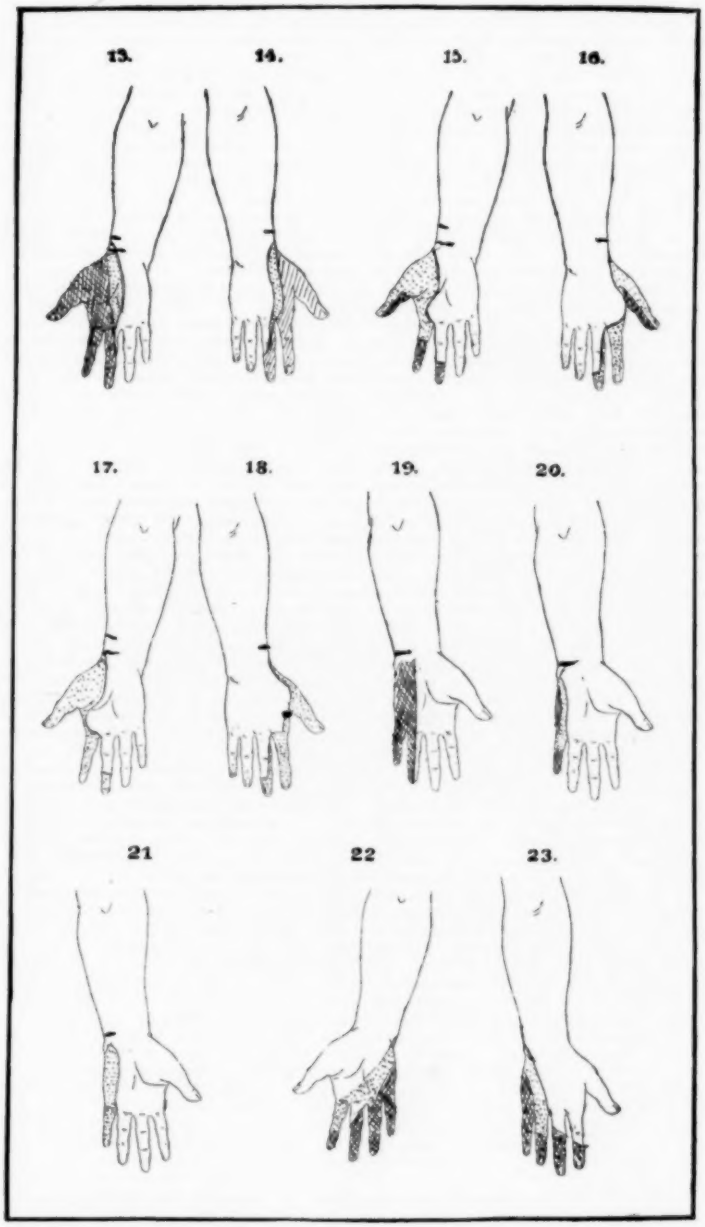



anti-brachii dorsalis) was torn. Both ends had grown into the scar tissue; they were dissected out and sutured together. On Jan. 3rd, 1902, the operation wound had healed by first intention. It was obvious that the patient could extend the fingers a little in the metacarpo-phalangeal joints and could abduct the thumb. On the 6th he could stretch the fingers in the metacarpo-phalangeal joint to 170° when the wrist was extended. On the 8th he could perform all movements in the fingers, the wrist, and the elbow with good power. Sensation also was good, but there was still no reaction for galvanic or faradic current. In consequence of the compression of the trunk of the radial (musculo-spiral) nerve there was paralysis of the extensor muscles of the forearm and hand, although this was not quite complete, as the patient could stretch the wrist a little. Electrical irritability was wanting and sensation was not interfered with. After the nerve had been made free by operation there was rapid and complete recovery. Both

in clinical and pathologico-anatomical respects this was an easy case. When there has only been a slight degree of anæsthesia in consequence of the interruption of the nervus cutaneus antibrachii dorsalis this probably may be due to the union of nerve fibres in the scar tissue between the nerve ends. This case should be compared with Case 5.

afterwards. In the meantime he had aching pains along the radial side of the fore-arm and down into the thumb. The pains were so severe that sometimes he was awakened by them in the night. The bandage was removed again four weeks after the fracture and it was observed that he could not stretch his wrist or his fingers. On admission

PLATE II.




CASE 5.—A man, 30 years of age, who had been hit by a stone during an explosion in a mine on Nov. 4th, 1901, was admitted into the hospital on Dec. 20th. The stone had struck the middle of the left upper arm, which was broken, and he received a little wound close to the fracture. The arm was put in plaster, which was taken off two weeks

the left hand was kept flexed, the fingers were flexed in all the joints, and the thumb was adducted. He could not extend the wrist, the metacarpo-phalangeal joints of the fingers, or the fourth and fifth fingers either at the middle phalangeal or distal phalangeal joint. Sensibility was reduced, as seen on Plate I., Figs. 2 and 3.

The musculo-spiral nerve did not react to faradic or galvanic currents; and the muscles supplied by it gave the reaction of degeneration. In the middle of the upper arm a considerable mass of callus was to be felt. Operation was performed on the 23rd. The nerve was dissected out through an incision on the extensor side of the upper arm. The upper fragment of the humerus was found to protrude as a sharp edge with several acute spikes. The nerve was found buried in the scar tissue and was dissected out. On the place of fixation it was light red and the single bundles of fibres were torn from each other. It was thicker below than above. Two side-branches (nervus cutaneus antibrachii dorsalis and nervus musculi brachialis) were torn. The ends were thickened with their tips grown into the mass of scar tissue. They were dissected out and sutured together. The peripheral end of the nervus cutaneus antibrachii dorsalis was found to be much thicker than normal. A piece half an inch long was cut off for microscopical examination. On Dec. 26th the patient could feel even a slight touch in the part where sensation had formerly been diminished. On Jan. 22nd, 1902, he could extend the fingers slightly in the mid-phalangeal joints. On the 28th he could extend the wrist a little. There was no reaction for electric current. Motility improved but slowly and it was only after a lapse of nine months that it became almost normal. Microscopical examination of the piece which was supposed to be the peripheral end of the nervus cutaneus antibrachii dorsalis showed that the club-shaped thickening for a great part consisted of connective tissue; in one half of the sections, corresponding to the free end, there were no nerve fibres to be seen, but only connective tissue. From the distal end there came several bundles of nerves, that by their whole structure and by the equal distribution of remnants of the myeline sheath in the whole piece and also by the uniform development of new myeline sheaths as interrupted pieces along black nuclei were manifestly seen to belong to the peripheral part of an interrupted nerve. From one of the portions entered in the opposite direction a couple of nerve bundles from the central end into the sections. The fibres were stained by Weigert's myeline sheath stain at first deeply blue-black and had the thickness and appearance of normal nerve fibres. They then dissolved into fine darkly stained threads that first formed bundles corresponding to the old nerve fibres, then spread like a hair pencil, meeting the fibres from the other end that also spread like a pencil. (Plate III., Fig. 1.) In this case the radial nerve had the appearance of having been crushed or torn and a part of its fibres interrupted, while the nerve was stretched over a sharp edge of the fragment of bone, over which it was found buried in the scar tissue. In consequence of this there were found complete paralysis of the muscles supplied by the nerve and reduced sensibility on the extensor side of the thumb. After the operation there was rapid recovery of sensibility, but slow and irregular recovery of motility. The interrupted nervus cutaneus antibrachii dorsalis had been united with the peripheral end through the scar tissue.

CASE 6.—A man, aged 31 years, was admitted into the hospital on Jan. 8th, 1902. On Oct. 19th, 1901, the patient sustained a fracture of the tibia and fibula below the knee-joint. The leg was put in plaster, but after the removal of the bandage it was found that the patient could not stretch the ankle or the toes. On the upper end of the tibia there was found a fracture line crossing from within outwards and upwards. The lower fragment was dislocated outwards and the upper fragment a quarter of an inch to the inner side. On the capitulum of the fibulæ a fracture line was felt going obliquely forwards and downwards and the fibula was pushed a little upwards. The foot was flexed, adducted, and supinated. Extension, abduction, or pronation could not be performed, nor could extension of the toes. There was no reaction by electrical examination for the galvanic or faradic current. There was anæsthesia in the area of the peroneal nerve as shown in Plate I., Fig. 4. Operation was performed on the 10th. There was made a longitudinal incision over the capitulum fibulæ which was found to be splintered by a fracture downwards and forwards. The upper end of the lower fragment had been pushed up and projected as a sharp edge and over this the peroneal nerve had been stretched. It was thickened and reddish both above and below. It was dissected free and drawn away from the edge of the bone which was cut off. On the place where the nerve had been lying over the edge of the bone it was contracted just as if a thread had been tied tightly round it. On the 11th the patient could feel pricking with a needle within the area which had previously been anæsthetic. On the 17th he could feel the prick of a needle everywhere except in a little area on the upper side of the foot. On the 22nd his condition was as shown on Plate I., Fig. 5. On Feb. 11th he could extend the toes a little. On the 17th he could extend the toes and also the ankle (a little) and the peroneal nerve reacted to both the galvanic and faradic current. The peroneal muscles did not react to either the galvanic or faradic current. On the 23rd sensation was as shown on Plate I., Fig. 6. In this case the peroneal nerve was almost completely interrupted. The nerve had been stretched over the edge of the bone, so that there had been formed a deep strangulation furrow. In consequence of this there were complete paralysis of the corresponding muscles and anæsthesia of the area of the nerve. A marginal area, where sensibility was only diminished, indicated that there was still slight power of conduction. The nerve having been made free by operation sensation was rapidly recovered, but even after several months there was diminished sensibility in a small area. Motor power could be traced after the lapse of one month but it developed very slowly and irregularly. Some days it seemed to be present and at other times it seemed to be completely wanting.

CASE 7.—A boy, aged nine years, was admitted into the hospital on Nov. 28th, 1901. Seven weeks before (on Oct. 10th) the patient had fallen from a tree and received a compound fracture of the lower end of the right upper arm (fractura supracondylica) and fracture of the radius and the ulna just above the wrist. The upper fragment of the humerus had pierced the skin on the outside just above the elbow and then the shirt and the coat. On admission the lower end of the humerus was found to be thickened and anteriorly a projecting edge could be felt. On the Roentgen photograph it proved to be the sharp lower anterior edge of the shaft of the humerus. The lower fragment was dislocated backwards and consolidated in this position. At the level of this edge on the anterior external aspect there was a scar three centimetres in length. The patient could flex and extend the elbow about 55° (from 90° to 145°). Pronation and supination were diminished. He could not extend the wrist or the metacarpo-phalangeal joint of the fingers and the other joint only slightly. The thumb could not be extended or abducted. Sensation was as shown on Plate I., Figs. 7 and 8. By electrical examination there was no reaction from the radial (musculo-spiral) nerve and its muscles for the galvanic or faradic current. Operation was performed on Dec. 3rd by a longitudinal incision in front of the epicondylus externus 10 centimetres in length. The nerve was laid bare where it crossed the outer edge of the humeral epiphysis; about two centimetres lower down the nerve had been almost completely torn through at the point where the nerve divided and the ends had grown into the scar tissue. The innermost fibres seemed to be continuous with the superficial branch while the deep muscular branch was totally interrupted. In order to free the peripheral end the supinator longus had to be detached from its insertion. All scar tissue was cut away. The injured part of the nerve was excised and the ends were united with thin silk sutures and the supinator longus was refixed at its insertion. Two hours after the operation it was observed that the patient could feel pricking with a needle on the extensor side of the proximal phalanx of the index finger. On the 7th he could feel pricking with a needle easily but not touching with a pencil on the extensor side of the first and second fingers. On the 30th he felt pricking with a needle everywhere but could not feel a gentle touch with a pencil over the proximal phalanx of the thumb. On Jan. 9th, 1902, he could extend the fingers slightly in the metacarpo-phalangeal joint. On the 10th by electrical examination there was no reaction from the radial nerve. The supinator longus gave the reaction of degeneration. The other extensor muscles did not react to the galvanic or faradic current. On the 21st some extension in the wrist was detected. On the 24th the patient could extend the metacarpo-phalangeal joints of the fingers and the wrist and the thumb could be abducted. He felt a gentle touch with a pencil everywhere. On Feb. 21st he could flex and extend the elbow from 60° to 170° with good power. There were full extension of the fingers and some abduction and good extension of the thumb. By a complicated fracture the radial nerve was torn below the elbow, the motor branch totally and the sensory branch partially. The consequence was complete paralysis and partial anæsthesia. Slight anæsthesia of the two distal phalanges of

the index finger and the flexor side of the thumb indicated that the median nerve was also injured, which might easily have taken place, the nerve passing the sharp broad edge of the upper fragment. After suturing the nerve return of sensibility was observed the same day and after 37 days of motility. Then complete recovery ensued. The good result in this case might be ascribed essentially to the youth of the patient and the short time that had elapsed after the injury.

CASE 8.—A man, aged 34 years, was admitted into the hospital on August 7th, 1901, suffering from fractures of the middle of the left upper arm, of the forearm, of the sixth cervical vertebra, of the seventh and eighth ribs, and of the eminencia crepitata of the left elbow. On Oct. 29th the fracture of the left upper arm was healed with considerable formation of callus. The fracture of the forearm was he...ed with some dislocation. There was reduced motility in the elbow, active motility being *nil* and the passive about 35°. Supination and extension of the wrist and of the metacarpo-phalangeal joints were wanting. The middle and distal joints of the fingers could only be slightly extended. There was almost total anæsthesia in the area of the radial (musculo-spiral) and the ulnar nerves, and the nervus cutaneus antibrachii lateralis. The anæsthetic area for temperature and touch was on the forearm a little more extensive than for the pricking of a needle. (Plate I., Figs. 9 and 10). By electrical stimulation no reaction from the radial (musculo-spiral) nerve could be obtained, but good reaction from the median and possibly from the ulnar nerve. Operation was performed on the 30th by a longitudinal incision on the back part of the upper arm. The radial nerve was found torn in the sulcus spiralis. The central end was thickened for about two centimetres, it was club-shaped, and with the tip attached to the scar tissue. As the peripheral end was not found another incision was made above the epicondylus externus where it was found. It terminated in a thin scar-like and uneven string, six centimetres in length, that had grown into the callous mass. Below this thin part, also, the peripheral end was thickened and hard. It was impossible to get the ends of the nerve together and therefore a piece of the humerus four centimetres long was resected near the fracture, the ends of the bone being sutured together by reindeer tendons. The humerus being thus shortened, the ends of the nerve were united by one thick suture and four thin marginal sutures. On the 31st the patient could feel pricking with a needle as pain on the extensor side of the thumb and on Nov. 4th he felt pricking with a needle over the whole of the extensor side of the hand. On the 6th the hand, which was swollen before the operation, now looked atrophied. The patient could feel slight touches in the radial area on the hand, somewhat uncertain, over the fourth and fifth metacarpal bones. In the ulnar area in the palm he felt even a slight touch well. On the 22nd the temperature was 39·3° C. A phlegmon had developed under the operation scar. Incision for drainage was made. On Dec. 10th there was a slight anæsthesia in a part of the radial area. The patient could feel pricking with a needle, but in a smaller area only as pressure. (Plate I., Fig. 11.) He could abduct the thumb and slightly extend its metacarpal joint. On Jan. 2nd, 1902, he could extend the metacarpal joints of the fingers and the wrist a little. On Feb. 4th there was better extension of the wrist and the fingers, but electrical examination showed no reaction from the radial (musculo-spiral) nerve. On the 15th there was still slight anæsthesia on the back of the hand and part of the forearm. (Plate I., Fig. 12.) On microscopical examination of sections from the divided ends by Weigert's myeline stain there were found myeline strips both in the central and peripheral end. In the intermediary scar tissue, which mostly consisted of connective tissue in dense masses, there was found both near the central and peripheral end a brownish fibrillary band formed of tissue, with long black nuclei in longitudinal directions. Along the nuclei there were found dark—in some places almost black—stripes as processes from the ends of the nuclei. The physical examination showed paralysis of the musculo-spiral and ulnar nerves and complete anæsthesia in almost the whole of their areas and in the area of the nervus cutaneus antibrachii lateralis. At the operation there was found interruption of the musculo-spiral nerve; in the intervening scar tissue by microscopical examination there was found a fibrillary tissue that seemed to contain young nerve fibres. By the operation it was possible to bring the ends of the nerve in close connexion with a broad surface. Sensation was observed to return very rapidly, but then diminished and afterwards was recovered slowly again. The ulnar and the musculo-cutaneous nerves were not laid bare by the operation and the character of the injury could not be determined. The rapid recovery after resection of the fracture seems to indicate that there must have been incarceration of the nerves, or that the ends of the nerves if they had been interrupted had by the operation come into a favourable position for union.

CASE 9.—A man, aged 24 years, was admitted into the hospital on Feb. 28th, 1902. On Dec. 25th, 1901, the patient dashed his hand through a window and received two wounds on the radial side of the forearm, just above the wrist. The tendons of the extensor pollicis longus, the abductor pollicis, and the radial nerve on the extensor side, and the flexor pollicis longus and the median nerve and part of the tendon of the palmaris longus on the flexor side were involved. The wound, but not the tendons or the nerves, was sutured. The wound suppurated. On admission sensibility was found as on Plate II., Figs. 13 and 14. The muscles of the ball of the thumb were atrophied and the thumb could not be opposed. By electrical stimulation the muscles of the ball of the thumb and the musculus interosseus primus gave the reaction of degeneration. The skin in the anæsthetic part was cold, sweating, and cyanotic. Just above the wrist there was a scar, four and a half centimetres long and somewhat irregular, crossing from the radial side obliquely to the flexor side. A little higher up on the radial side was seen a scar three centimetres long. Operation was performed on March 4th. An incision was made between the tendon of the flexor carpi radialis and the palmaris longus to the ligamentum carpi transversale. The median nerve was found partly severed. On the medial side of the nerve the ends were connected by a bridge, being about one-fifth of the thickness of the whole nerve. Plate III., Fig. 2, shows a longitudinal section through the injured place. The injured part of the median nerve was excised, there being cut off one centimetre of the club-shaped central part and 0·5 centimetre of the peripheral part. The ends were united with one deep suture and three edge sutures; the severed tendons were united. Then another incision was made along the lower part of the radial side. A little glass splinter was found under the scar. The dorsal branch of the radial nerve was found to be cut. The central end was seen to be thickened, club-shaped, and fixed to the scar. The peripheral divided just below into three branches. The ends were cut loose and the nerve was united with catgut. On the 5th the patient could feel pricking with a needle on the ulnar side of the distal and middle joints and on the dorsal side of the proximal phalanx of the index finger. Further examination could not be made on account of the bandage. On the 8th the bandage was changed. The patient could feel pricking with a needle and pinching with pincers over the dorsal and volar side of the first and second metacarpal bones. On the 15th the wounds healed by first intention. Sensibility was as shown on Plate II., Figs. 15 and 16. On April 8th by electrical examination the muscles of the ball of the thumb reacted somewhat less than normal for the faradic current. By galvanic current there was only visible contraction. It was slow and gave the reaction of degeneration. On the 11th the thumb could be opposed. On the 23rd the patient could feel pricking with a needle everywhere. Sensibility was slightly diminished, as shown in Plate II., Figs. 17 and 18. He could take up a needle and perform all movements with the thumb. The case was of interest in several respects. There seemed to be complete harmony between the alterations of sensibility and the anatomical condition found by operation. The median nerve was interrupted, only a little bridge near the inner side being left. Corresponding to this was found complete anæsthesia but for a strip along the middle of the palm and part of the median side of the third finger and the lateral side of the fourth. Corresponding to the interruption of the radial nerve there was anæsthesia in almost its whole area. Both ends had grown to the scar in close proximity to each other and thus there was reason to believe that the nerve fibres might have penetrated the scar tissue in sufficient number to account for the still existing sensibility. The conditions in this case seem to have been favourable for union; and when it has not occurred there may scarcely be seen any other reason for it than suppuration and the formation of a dense scar tissue.

CASE 10.—The patient, who was aged 24 years, on May 21st, 1902, received a wound from a piece of glass over

the ulnar part of the front of the wrist. The wound was bandaged but suppurated. When admitted to the hospital on July 4th there was found a scar two and a half centimetres long crossing the lower end of the ulna, and at the upper side of this scar a little granulating wound was still found. The wrist could not be extended completely. It was flexed 20° and from this position might be flexed 20° more. All movements could be performed in the thumb. The four last fingers could not be moved at the metacarpo-phalangeal joint or at their distal joints. In the middle joints the movement was above 60° (from 110° to 170°). There was anæsthesia as shown on Plate II., Fig. 19. By electrical examination there was no contraction of the small muscles of the hand by faradic irritation of the ulnar nerve at the epicondylus internus. By direct irritation of the muscles with the faradic current very slight contractions of the muscles of the thumb could be produced, but no contraction of the interossei muscles or the muscles of the hypothenar eminence. By the galvanic current (two milliampères) there was no contraction by direct irritation of the muscles of the hypothenar eminence and there was reaction of degeneration with slow contraction of the interossei and the muscles of the thenar eminence. Operation was performed on the 5th. An incision was made along the lower part of the ulnar side of the forearm. The volar branch of the ulnar nerve was cut close above the pisiform bone. The ends of the nerve were dissected out and sutured together. On the 16th the little finger could be adducted. On the 22nd the patient could not flex the metacarpo-phalangeal joints and there was only incomplete flexion in the distal joints but better flexion in the middle joints. Sensibility was as shown in Plate II., Fig. 20. On August 5th sensibility was being recovered steadily (Plate II., Fig. 21). The hypothenar eminence was atrophied. The metacarpo-phalangeal joints could be flexed 30°; the middle joints could only be stretched to 150° and from this could be flexed 30° or 40°. The distal joints could be flexed about 15°. The fingers could be spread and joined together but less than on the other hand. This is a typical case of interruption of the lower branch of the ulnar nerve with complete anæsthesia and paralysis of the muscles supplied by the nerve. There was no trace of assistance from the other nerves.

CASE 11.—The patient, who was aged 43 years, had received in 1896 a complicated fracture of the right forearm. Suppuration occurred and long incisions were made on the flexor and extensor sides. On May 29th, 1902, the skin on the right hand was seen to be thin, glossy, and livid. The muscles of the forearm and hand were totally atrophied and there was no active motility in the hand or the fingers. Sensibility was partly reduced and partly absent in the area corresponding to the ulnar nerve and a part of the area of the median nerve (Plate II., Figs. 22 and 23). On June 7th an incision was made from the bend of the elbow downwards. The median nerve was dissected out. It was much thinner than normal and below the elbow divided into two irregular branches, one of which might be followed towards the fracture as an uneven, thin, tapering cord that was united to the peripheral end. The other branch was lost in an atrophied muscle. The ulnar nerve was almost totally interrupted. Both the central and the peripheral part of the nerve was thinner than normal. The central part was club-shaped and thickened and from the tip a thin cord might be followed downwards towards the peripheral end, to which it seemed to have been partly united, while most of it was lost in the scar tissue near the fracture. The muscles were shrunk to thin fibrous bands which partly consisted of a flaccid yellowish-brown tissue. It may be supposed that the communication between the interrupted ends of the nerves had contained a sufficient number of nerve fibres to account for the sensibility that was left, but even if there had been a certain degree of conduction the circumstances had not been favourable for further development of this. Probably the scar tissue, after the severe inflammation, had hindered this. A considerable atrophy of the central part of the nerves as well as of the peripheral part shows also that the central part degenerates when the nerve is put out of action.

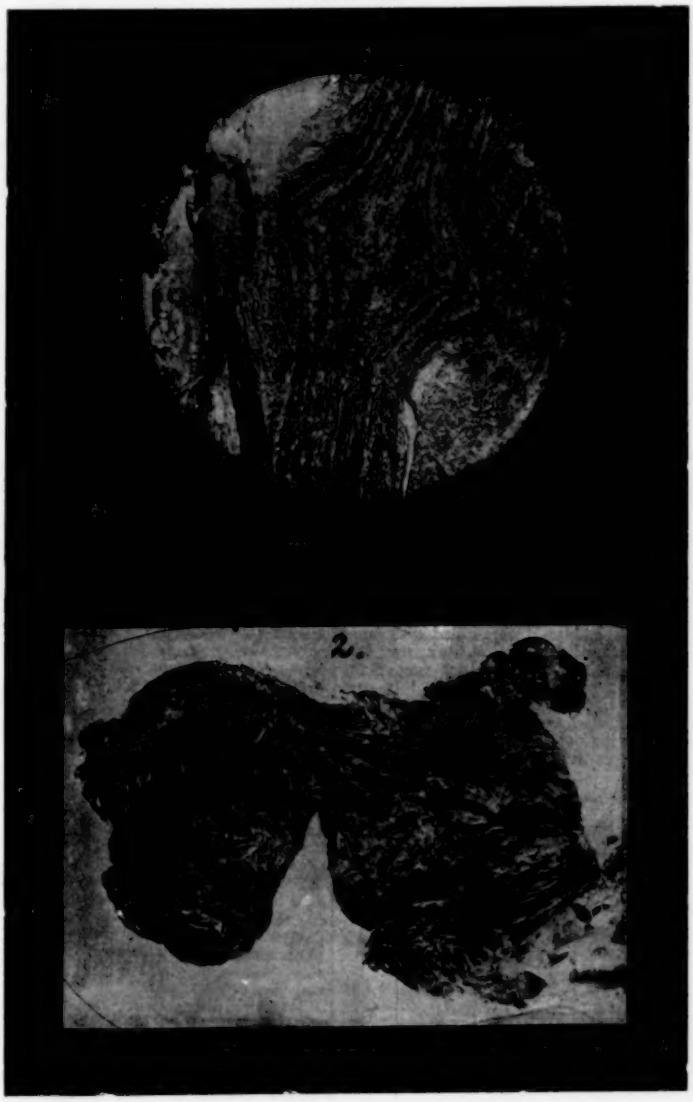
The observations noted above as to the condition of the nerves at the operation show that the more complete the interruption of a nerve the more precise will be the symptoms of suspension of the function of the nerve. Case 10 was almost a clear experiment in this respect. 45 days after the cutting of the branch of the ulnar nerve there were still paralysis of the muscles and anæsthesia of exactly its area and after secondary suture there was rapid recovery. When total interruption gave such clear and distinct symptoms it must be concluded that the sensibility observed in Case 1 three days, and in Case 2 20 days, after primary suture must be due to conduction through the sutured nerve at least as far as the palmar branch is concerned. In Case 8, after three months there were paralysis of the radial and ulnar nerves and complete anæsthesia of almost their whole area. The sensibility that was still present in their areas was of very small extent and might well be explained by conduction through the nerve fibres in the intermediary scar tissue. Assistance worth mentioning from the other nerves has not been present. In Case 2 where the ulnar nerve and the cutaneous branch of the radial nerve were cut sensibility was observed after three days, suture being performed immediately. In Case 9 there was anæsthesia in most of the area of the median nerve. At the operation there were found connexions between the ends of the median nerve corresponding to the part where sensibility was found and after excision of the injured part and suture there was rapid recovery in the whole area. There was complete anæsthesia in most of the area of the radial nerve and the sensibility that was present might be supposed to be due to union in the scar tissue of nerve fibres. In Case 6, as a consequence of strangulation of the peroneal nerve there were paralysis and anæsthesia of most of its area. In Case 3 sensibility was found 24 hours after primary suture of the same nerve. Cases such as 4 and 5, where there was only slight or no anæsthesia but paralysis of the muscles, have especially been observed with reference to the radial (musculo-spiral) nerve and have given rise to the opinion that this nerve is less independent than other nerves and that it does not supply an area alone (Bernhardt, Gowers, Leegaard). This assumption is not confirmed by my cases. Comparing Cases 8 and 9 it will be seen that in the former case the median and the radial (musculo-spiral) nerve were injured and in the latter case the ulnar, the nervus cutaneus antibrachii dorsalis lateralis and the radial nerve, and in none of them is there any reason to suppose that the nerves still uninjured assist in any essential degree. The radial nerve thus must be supposed to have an area of its own that seems to be well limited. The apparent disagreement between the motor and the sensory symptoms must be explained in another way. When resistance is introduced into a nerve conduction it may cause paralysis without anæsthesia, while it may be overcome by an irritant that is strong enough to influence the sensory elements of the brain, but not sufficient to bring the muscles to contract (Leegaard and Gowers). In this way the explanation may be sought that there can be sensibility even if the motor function is totally absent. When the radial (musculo-spiral) nerve has seemed to be different from other nerves this must be supposed to be owing to the character of the injuries to which this nerve is exposed. In this respect the fact may be pointed out that it is exposed to violence—direct or by fracture—during its course in the sulcus spiralis round the forearm, far from its peripheral end, and that the injuries to which it is exposed often have the character of crushing without total interruption.

Slight compression of a nerve is sufficient to paralyse it (see Case 4). To procure anæsthesia there must be more severe lesion (Cases 5, 7, and 8) and as long as there is any connexion between the ends of the nerve the conditions seem to be there for a certain degree of sensibility. Case 11 shows that even if there is sensibility it may not be followed by motility. When the ends of a nerve that have been severed for a long time are united by secondary suture and the direct result is sensibility it can only be explained by the supposition that there have been formed conducting fibres in the peripheral part. As they can only conduct the impression when they are put in connexion with the central end it must be supposed that they are formed without connexion with the central organ, as has been asserted by Philipeaux and Vulpian, Kennedy and Bethe. Both after primary and secondary suture sensibility has returned after the lapse of a short time and as we must assume that the sensibility is due to conduction through the sutured nerve the questions for further consideration will be: (1) Can a severed nerve heal without degenerating by being sutured? or (2) Can a degenerated nerve be supposed to be to some extent conducting?

*Can a severed nerve heal without degenerating by being sutured?*—To inquire into this question I made a series of

divisions of nerves with immediate suture. All the experiments have been performed on the peroneal nerve of the rabbit which is conveniently situated for operation and the subsequent electrical examination. The operations were performed with all aseptic precautions. The nerve having been cut the suture was applied by carrying the point of the needle through the ends of the nerve somewhat in the longitudinal direction of the nerve. The thread was tied while the ends of the nerve were brought as much as possible into contact and the nerve was treated as carefully as possible. The wound was closed with catgut. In all the cases referred to there was healing by first intention. The electrical examination was made with two or three days' interval with both the galvanic and the faradic currents, the animals having previously been shaved on the back and the lower extremities. The animals were killed after the lapse of a shorter or longer time and the nerve was excised and placed in physiological extension on a piece of wood or cork and hardened for microscopical examination. The number of nerve divisions with immediate suture which I made was 19. The results of the operation in all the cases were paralysis of the corresponding muscles and abolished electrical irritability. By microscopical examination there were found in all cases changes that indicated with certainty degeneration of the peripheral part of the nerve; in the earlier stages coagulation and segmentation of the myeline sheath and axis cylinder, in the later stages nerve fibres that by their dimensions and uneven and partly varicose appearance must be assumed to be newly-formed fibres but not a single fibre of normal appearance. The result was the same as that at which almost all other investigators have arrived. Union by first intention without degeneration I have not thus been able to obtain, and the changes that were found were so uniform that there was scarcely left hope for another result even if more involved and perhaps more exact methods of suturing were employed.

PLATE III.



In my first series of experiments seven rabbits were examined to the commmencement of electrical reaction, but only five sufficiently frequently. Electrical reaction was observed on the fifty-fourth, the sixtieth, the fiftieth, the fifty-fifth, and the fifty-sixth days, and on the average on the fifty-fifth day. In order to see whether the suture is of any importance at all for the return of function a second series of five experiments was made in which the nerve was cut without being sutured. The result was about the same and electrical reaction was observed on the sixty-first, the sixty-first, the fiftieth, the fifty-third, and the fifty-third day, and on the average on the fifty-sixth day. Thus the nerve suture does not seem to have any great importance for the return of the nerve function. The microscopical examination will be treated later.

*Can a degenerated nerve be supposed to be to some extent conducting?*—This question may be solved in two ways—either by proving conducting elements in the degenerated nerve or by proving effects of the nerve function during the degeneration period. According to what has formerly been mentioned the new fibres must be supposed to be formed of elements in the peripheral part of the nerve. What are these elements, and at what time can they be shown as continuing courses fit for conducting a nerve impulse? When a nerve is divided the weight of the corresponding muscles will diminish rapidly. By weighing the muscles 12 days after dividing one peroneal nerve of a rabbit it was found that the muscles corresponding to the divided nerve weighed 4·77 grammes, while the muscles on the other side weighed 6·98 grammes—a difference of 33 per cent. When the nerve unites again motility comes earlier than the electrical reaction. In several of my experiments the difference seemed to be considerable, as the animals could use the operated limb almost as well as the other limb long before electrical reaction was observed. If the muscles have thus resumed their activity and in consequence of the return of nerve conduction, one may suppose that this also may be shown by changes in the microscopical appearance of the muscles or in the cessation of atrophy or increasing weight. To examine these circumstances the third series of experiments was made in the following way. The peroneal nerve was divided on both sides. On the one side one of the ends was pulled out through the split in the fascia and fixed subcutaneously while the split for the rest was closed with catgut. In this way the nerve was prevented from uniting. On the other side the divided nerve was permitted to unite. The animals were killed with some days' interval and both the united nerve and the central and peripheral end of the non-united nerve were hardened for microscopical examination. The muscles supplied by the peroneal nerve were carefully dissected out as similarly as possible on both sides and were then immediately weighed. A piece of the muscles was cut out from corresponding places of the muscles on both sides and hardened in formalin for microscopical examination. The result of the weights may be seen from the annexed table.

| No. | Operation. | Killed. | Weight of muscles of united nerve. | Weight of muscles of interrupted nerve. | Excess on the side of united nerve. | Per cent. |
|---|---|---|---|---|---|---|
| | | Day. | Grammes. | Grammes. | Grammes. | |
| 1 | Dec. 5th, 1901. | 12th. | 4·580, right side. | 4·410, left side. | + 0·170 | + 3·7 |
| 2 | Dec. 5th, 1901. | 18th. | 4·580, right side. | 4·400, left side. | + 0·180 | + 3·9 |
| 3 | April 21st, 1902. | 22nd. | 3·315, left side. | 3·335, right side. | − 0·020 | − 0·6 |
| 4 | Oct. 19th, 1901. | 30th. | 3·050, right side. | 3·170, left side. | − 0·120 | − 3·9 |
| 5 | April 21st, 1902. | 35th. | 3·520, left side. | 3·660, right side. | − 0·140 | − 3·9 |
| 6 | Feb. 7th, 1902. | 37th. | 2·610, left side. | 2·600, right side. | + 0·010 | + 0·4 |
| 7 | Dec. 14th, 1901. | 38th. | 4·275, right side. | 4·020, left side. | + 0·255 | + 6·9 |
| 8 | Oct. 9th, 1901. | 45th. | 4·152, left side. | 3·670, left side. | + 0·482 | + 11·6 |
| 9 | April 21st, 1902. | 52nd. | 3·425, left side. | 2·985, right side. | + 0·440 | + 12·85 |
| 10 | Feb. 7th, 1902. | 59th. | 3·815, left side. | 3·180, right side. | + 0·635 | + 15·9 |

EXPLANATION OF PLATES I., II., AND III.

*Plates I. and II.*—(The stippling means anæsthesia for touching with a pencil. Single lines mean anæsthesia for touching with a pencil, pricking with a needle is felt as pressure. The crossed lines mean anæsthesia for pricking with a needle.) The crossed lines on Fig. 11 should be single lines. The single lines on Fig. 14 should be crossed lines.

*Plate III.*—Fig. 1, section through the place of union of the interrupted nervus cutaneus antibrachii dorsalis from Case 5. Weigert's myeline sheath stain. Enlarged 20 to 1. Fig. 2, section through an excised piece of nervus medianus that had been partly cut over by a piece of glass. (Case No. 9.) Weigert's myeline sheath stain. Swift, ob. 2 inch, ca. 8/1.

*(To be continued.)*

# SOME DANGERS OF HYPNOTICS.[1]

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EVERY practitioner will admit that large numbers of the public employ remedies to induce sleep. It is a habit which has been formed gradually and it is one which is generally concealed. Those addicted to the employment of hypnotics often recognise that the habit is not likely to meet with the approval of the medical attendant, who will probably point out certain risks and endeavour to dissuade them from continuing the use of drugs. They argue, however, that sleep is to be desired, that when the natural power or routine of sleep is broken something must be done, and having once found some means of restoring their confidence they do not wish to be deprived of this source of comfort and they do not wish to hear anything of the risks incurred. The general risks of the formation of the drug habit are not those which I wish to consider. This is an obvious danger with almost any hypnotic, and it is one which can only be guarded against by careful consideration of the cause of the sleeplessness and of the character of the patient. These are matters which must always engage the attention of the practitioner who is called upon to treat sleeplessness. It is only the very young man who will get into the routine of employing the same pet formula in all circumstances. Increasing experience soon demonstrates that time is well spent in endeavouring to understand the special cause of the symptom in the individual case, since unless this has been found the invaluable specific soon meets with a check.

In the present paper I do not propose to consider the relative advantages of the various hypnotics under different conditions. I do not wish to facilitate their employment. I am approaching the subject from an opposite point of view, hoping to diminish the frequency of their use by developing the following propositions: (1) they may all involve danger; (2) the conditions under which they may procure undesirable results are not always dependent upon the dose; (3) the danger may be limited to the patient; (4) the danger may involve the prescriber or the dispenser; and (5) before the employment of a hypnotic the bare symptom, sleeplessness, is perhaps the least important factor to be considered.

It is not many years since the ordinary text-books on treatment gave but a short list of remedies for sleeplessness. Remedial measures were mentioned in detail, but the drugs enumerated rarely included more than opium and its preparations, chloral hydrate, and potassium bromide. The nausea, loss of appetite, constipation, and headache after the employment of opium, the cardiac depression and occasional excitement after the use of chloral hydrate, and the dulness and depression of spirit with potassium bromide, have long been recognised and only need a passing mention. These untoward results have, however, had their influence in promoting the search for a reliable and desirable hypnotic and now the list has been greatly extended, and as each new hypnotic is introduced it has been customary to claim for it

[1] A paper read before the Therapeutical Society at the Apothecaries' Hall on March 31st, 1903.

some advantage over those previously employed. It is not enough to say that it induces sleep—other drugs have the same power—but it does so without some one or more of the real or imaginary disadvantages which have been found to arise with the older remedies.

Under the heading of Insomnia in the Therapeutic Index of a manual published in 1901 I find an enumeration of no less than 50 remedies. Naturally many of these have new and unfamiliar names; many of them have hardly been tried in this country, or at all events they have not come into general use. Still it is asserted in nearly every case that the drug is a pure and simple hypnotic, that it produces refreshing and natural sleep, and that it does not depress the circulation and respiration. These statements generally occur in the preliminary lines relating to the actions; lower in the page, with increasing experience, may come brief references to toxic effects. This sequence is sufficiently common, I think, to justify my first generalisation that all hypnotics may be bad and dangerous. If there is at present any apparent exception I am convinced it will not stand the test of time; the limits of utility, the special dangers in special circumstances, will be realised sooner or later. Sulphonal is perhaps one of the best examples in favour of this contention; it long held its ground as a safe hypnotic, though it was admitted to be somewhat slow or even uncertain in its action. Then came records of peculiar after-effects, such as drowsiness, giddiness, headache, and ataxic gait, and later still there were accounts of its influence upon the urine, of collapse, of weak and rapid pulse, of prolonged coma following large doses, and even of death. Concerning sulphonal one writer says: "A very serious feature in most of the fatal cases of poisoning is that usually the patients have been under treatment for some time and have been apparently benefited by the drug up to the time of the appearance of the toxic symptoms."

It has been stated that sulphonal, which is chemically dimethyl-methane-diethyl-sulphone, owes its activity to the presence of the two ethyl groups. Accordingly, greater sleep-producing powers have been claimed for trional and tetronal, the former having one methyl group replaced by ethyl and the latter having two methyl groups replaced by ethyl. They are respectively diethyl-sulphone-methyl-ethyl-methane and diethyl-sulphone-diethyl-methane.

I will not enter into a discussion as to whether the increase of ethyl or the reduction of methyl promotes hypnotic properties. It is sufficient for my purpose to state that as with sulphonal, so with trional and tetronal, toxic symptoms may follow the prolonged use of moderate doses. With trional anorexia, vomiting, constipation, and epigastric pain have been noted, together with hæmatoporphyrinuria. In some cases these indications have been the prelude to collapse and death. A very interesting case has been recorded in which 15 grains of trional administered every other night for 15 weeks produced vertigo, headache, abdominal pain, diarrhœa, and hæmaturia, with granular and hyaline casts. Tetronal acts somewhat more rapidly than sulphonal, the effects following within from 15 to 30 minutes. Usually it is excreted unchanged in the urine, but if this elimination is delayed the action is also delayed or postponed and undesirable symptoms may ensue. These are similar to those of sulphonal and trional, the prominent symptoms being headache, anorexia, nausea, vertigo, and incoördination, together with hæmaturia or hæmatoporphyrinuria.

The physical properties of paraldehyde, the unpleasant ethereal odour, and the pungent, disagreeable taste are generally thought to be sufficient to prevent the formation of a paraldehyde habit. Several cases of habit have, however, been recorded and they agree in showing that this drug produces mental and physical deterioration similar to that which results from chronic alcoholism. Overdoses have occasionally produced epileptiform convulsions, but muscular relaxation and deep stupor are more frequent. Hallucinations, delusions, and mental failure have been met with.

So far very little has been said against urethane beyond the fact that it should be given in several small doses, since a single large dose may induce vomiting. This effect is probably owing to its power of retarding digestion while not checking decomposition.

I have said that the conditions under which untoward results occur with hypnotics are not always dependent upon the dose employed. By this I mean that there may be some special intolerance or idiosyncrasy to some particular drug, or that ordinary doses may be distinctly dangerous when certain diseases are present. It is not enough to know the general actions and the doses of the various hypnotics with the toxic symptoms they may produce when employed in overdoses or for too long a period; it is necessary also to know the various contra-indications. Students are taught to avoid prescribing incompatibles, such as acids with carbonates, iron preparations with many vegetable infusions, and so on, but do they realise generally that there is also an incompatibility between certain drugs and certain diseases? For example, when and where do they learn, except by practice, that there is great danger in prescribing opium or morphine in cases of grave pulmonary engorgement? This may be mentioned incidentally in lectures or in the wards, but I doubt whether the statement makes much impression. The dangers of opiates in chronic bronchitis with profuse secretion cannot be too often insisted upon; and opium is also contra-indicated with delirium tremens and with chronic alcoholism, even in the absence of renal structural changes. When there is chronic albuminuria due to Bright's disease the use of opium is sometimes recommended; several observers maintain that small doses of morphine are of service in the treatment of uræmic convulsions. This certainly has not been my experience. One of the most painful deaths I have witnessed was marked by complete suppression of urine when morphine had been injected subcutaneously after a severe operation; the patient was known to have granular kidney and had previously had no indications of impending uræmia.

Chloral hydrate is another drug which may be mentioned in illustration of the influence of disease; the dangers of this drug with cardiac degeneration and dilatation must frequently be insisted upon. In many cases of hysteria and melancholia the symptoms may be increased to a dangerous extent by chloral hydrate, in both there is a great tendency to the formation of habit, and in both there is risk of the development of suicidal impulses. It may be well again to illustrate the possible dangers with ordinary doses by reference to the surgical objections to the use of opium for the relief of pain in appendicitis. When a narcotic dose has been given the symptoms may be so far masked that the proper time to operate may be missed. Apart from disease the chief dangers of hypnotics undoubtedly lie in the facility of employing an overdose, either by accident, through ignorance, or with suicidal intent. The facility with which hypnotics may be purchased is a point of extreme difficulty. Recently I saw, with Dr. J. A. Browne and Dr. A. J. Ryle, a woman who ran considerable risks through an over-dose of sulphonal. We never knew how much she had taken, but we found an empty bottle which had contained 50 doses of five grains each in compressed form, and so far as we could ascertain, part had been taken on a Thursday night and the remainder on the Friday night. When she was seen on the Saturday morning she had vomited numerous fragments of the drug which were found in the bed and in her hair, her breathing was stertorous and shallow, her face was cyanosed, the tongue was swollen and protruding, her pulse was very feeble and rapid, and all reflexes were abolished. With treatment the cyanosis left and the circulation and respiration improved, but the profound coma persisted until the following Thursday, a week from the time the first quantity of sulphonal had been taken, and even on the following Saturday her speech was still thick and slurred, like that of a person recovering from an alcoholic bout. In this case the condition was so serious when medical help was first sought that I am convinced the patient would have died but for the promptness and energy of treatment. Here we were dealing with a drug which is regarded generally as a safe, if somewhat uncertain and inconvenient, hypnotic, and I do not see how to prevent such an occurrence so long as proprietary preparations can be purchased with the present facility.

You will forgive me for mentioning three other cases which have come under my notice as they bear upon this point, the danger of the possession of a drug purchased as a hypnotic. Very many years ago I was called to attend a man living alone in chambers. He had been found on his bed in a state of unconsciousness when his door had been burst open. All the cracks round the windows had been carefully closed with paper and paste and the doors had been similarly sealed up. In the centre of the room was a charcoal stove with dead embers standing in a bath. Now although all circumstantial evidence pointed clearly enough to an attempt to commit suicide with charcoal fumes the case was complicated by the man having taken a large dose

of opium, a fact which was not immediately apparent and one which caused a great deal of trouble before all danger was passed. It was ascertained later that he was a confirmed opium-eater, though how he obtained the large dose remained a mystery.

In another case, which was regarded by a jury as death by misadventure, a fatal dose of tincture of opium was taken instead of a dose of black draught. Two bottles were on the mantelpiece and the wrong one having been taken the jury took a charitable view of the circumstances without inquiring too closely into the reasons which led to the presence of the dangerous drug.

In another instance a patient was found comatose in bed with a tumblerful of water on the table at the bedside; another tumbler with a few drops of dark liquid at the bottom, an empty bottle labeled "linimentum opii," and a big brush were also on the table. There was a brown stain on the chest and the garments were similarly marked. All the surroundings pointed to misadventure, but in reality a large dose of morphine had been taken. This patient recovered, but the reasons for the possession of morphine were never satisfactorily explained.

In my experience I have come across several instances where the dangers of the use of hypnotics have extended to the prescriber or the dispenser. One of the earliest arose from the patient altering the prescription before sending it to the druggist. One drachm of chloral hydrate had been prescribed with one drachm of potassium bromide and these were to be made up with three ounces of water for three separate doses on alternate nights. The patient drew a stroke of the pen after the first numeral, thus converting a 20-grain dose of chloral hydrate into a 40 grain dose, and, not content with this, took two such doses (80 grains) with only an interval of half an hour. Happily for the prescriber and dispenser, this large dose excited the patient instead of depressing him, so instead of dying from heart failure he spent the night in wild delirium. Had the result been fatal the prescriber would have found it difficult to prove that he had not carelessly written a prescription with two long-tailed numerals, and the dispenser might have been asked awkward questions for his reasons for sending out 40-grain doses without referring to the prescriber.

The tincture of cannabis indica has also afforded me two interesting examples. I remember seeing a letter in one of the journals stating that cannabis indica was a cumulative poison. Five doses had been taken without marked effects, good or bad, but with the sixth and last dose toxic symptoms appeared. The mystery was not very great: no mucilage had been given to suspend the resin, nor were there any directions to shake the bottle, so probably the whole active ingredient of the six doses was taken in a single dose at the end. In another instance with cannabis indica the minimum pharmacopœial dose of the tincture was prescribed during the morning for a highly nervous patient. Three hours later an urgent telegram was received from him; he had taken the medicine and was very ill indeed. When seen he described how he had felt very weak and giddy shortly after taking the medicine and, without any knowledge of the well-recognised toxic symptoms, he gave an interesting account of his loss of the sense of time. It had taken him "an age to get home," though in reality he had only been a quarter of an hour in the underground railway. He thought that the medical man would never come, though not half an hour had elapsed from the time of sending his telegram. He thought that he was going to die, his pulse was so rapid and he felt in such a flutter. Such symptoms are well known with special idiosyncrasy or even with some preparations of cannabis indica, but the smallness of the dose and the disparity of the result were puzzling. At length the patient was informed that it was undoubtedly the result of the medicine and in view of the possibility of idiosyncrasy it was mentioned that he had taken a fairly large dose of a very active drug. He immediately said, "Who told you so?" and admitted having drunk the medicine from the bottle and having inadvertently swallowed rather more than a double dose, thus at once relieving both the prescriber and the dispenser from all further responsibility. I may add that although I have used cannabis indica fairly frequently I always commence with a small dose owing to the disproportionate results which may be produced.

In further illustration of the dangers which are sometimes shared with the patient by the medical man and the dispenser I can give you the following brief notes. Several years ago a woman consulted one of my colleagues without having been sent to him by her own medical attendant. A prescription for 15 minims of tincture of nux vomica was given to her. This she had made up and took one dose; then as her own medical man called upon her she told him what she had done and showed him the prescription. He said strychnine had been prescribed—a most dangerous drug. Shortly afterwards she had twitchings of the limbs and became extremely alarmed. The husband was informed of the supposed danger and in a rage smashed the medicine bottle, so that it was impossible to ascertain whether there had been any error in compounding the mixture. A special messenger was sent by the medical attendant to the consultant, giving a brief statement of the condition of the patient and assigning all responsibility to the prescription. So far this case seems to have nothing to do with the subject of my paper, the dangers of hypnotics, but mark the sequel. My colleague asked me to go with him to the case. We found two medical men in attendance, administering stimulants and performing artificial respiration. The patient was certainly in a bad way, but there was no rigidity and there was nothing pointing to immediate danger from strychnine poisoning. We were told that her respirations and circulation showed repeated signs of failure and we ascertained that she had been treated with heroic doses of chloral hydrate to antagonise the influence of strychnine. All the symptoms we observed were those of poisoning by chloral. Happily this patient recovered so there was no need to attempt to assign the whole responsibility either to my colleague, to the druggist, or to the medical attendant, but at any rate one does not usually have to perform artificial respiration vigorously for patients suffering from strychnine poisoning. They may die from arrested respiration due to fixation of the respiratory muscles during a convulsion but if really under the influence of strychnine any movements and disturbance to perform artificial respiration will be likely to produce fresh convulsive spasms.

In these examples the dangers incurred by the prescriber and the dispenser are sufficiently obvious and it is perhaps scarcely necessary to dwell further on this point. Whenever a misadventure occurs after a drug has been taken it is clear that the friends would generally prefer to cast responsibility upon the prescriber or dispenser rather than to allow that the death was due to suicide or to an overdose taken by accident. Those addicted to the use of hypnotics do not always play the game fairly; they may obtain the desired drug by subterfuge, and when once it is in their possession they may conceal the fact owing to shame, and this concealment may lead to consequences which they cannot have anticipated. One of the most common devices is for the hypnotic to be placed in a bottle with an innocent-looking label. I have known a bottle labeled "sal volatile" to contain a strong solution of morphine. This bottle was kept in a cupboard in the bedroom and at the request of a semi-delirious patient it was given to him by the nurse with a fatal result.

The administration of some hypnotics by hypodermic injection is fraught with numerous dangers which no doubt contribute largely to the favour which greeted the introduction of the more insoluble group of drugs such as sulphonal and trional. The hypodermic syringe was full of risks when it passed into the hands of the public. It encouraged the frequent use of hypnotics, the formation of the drug habit, and it led to the employment of increasing doses and to the possession of strong solutions or of compressed drugs which were always liable to be wrongly employed. The chief disadvantage of the hypodermic use of hypnotics is, however, to be found in the difficulty experienced when an over-dose has been employed. When an over-dose has been taken by the mouth some of it may be returned by vomiting or by the use of an emetic or by the stomach-tube, or it may be rendered inert by the administration of some other drug which may render it insoluble before it has been absorbed from the stomach. When given hypodermically all these modes of treatment are barred and the safety of the patient depends on the employment of a physiological antidote which may hinder activity sufficiently long to allow time for elimination. It must also be remembered that what has been said of the dangers not always being dependent on the dose is especially true for drugs employed hypodermically. In the case of acute suppression and uræmia before mentioned the dose of morphia was comparatively small but disproportionate results ensued owing to the existence of Bright's disease.

In conclusion, I would repeat my conviction that in the employment and in the selection of a hypnotic sleeplessness is perhaps the least important factor to be considered, although it may be the sole symptom of which complaint is made. The cause must be ascertained, together with any indications of idiosyncrasy. The co-existence of other diseases must influence the selection of the hypnotic and even when, for the individual case, a suitable hypnotic has been found, risks of repeating moderate doses must be borne in mind. Generally the dose has to be gradually increased, especially when the cause has not been ascertained or satisfactorily dealt with, but with some drugs—e.g., sulphonal, trional, and tetronal—the danger appears to lie in the total quantity taken, even though each dose may have been small. But perhaps the greatest danger of all is incurred when the patient is given a prescription for a hypnotic and this danger has certain analogies with the medicinal employment of alcohol. Many of us believe that at the height of fever or in conditions of collapse alcohol is often necessary, but it is never recommended to our patients for indefinite use, still less for increasing doses. Armed with a prescription for a hypnotic patients commonly go on taking the drug long after the relief of the special circumstances for which it was prescribed and the prescription may be used to facilitate the acquisition of large quantities of a dangerous drug obtained, perhaps, at several establishments in small amounts.

Notwithstanding the relief which many have derived from the use of hypnotics I am in favour of any step which tends to prevent their administration except by the medical man or under his immediate directions. I have seen so much of the dangers of hypnotics that I would prohibit their sale to the public or would allow them only to be dispensed to a freshly dated prescription, which should be retained by the druggist or returned to the prescriber.

Harley-street, W.

## THE SURGICAL TREATMENT OF PUERPERAL PYÆMIA.

BY ERNST MICHELS, M.D. BERLIN, F.R.C.S. ENG.,
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IN making this little contribution to the treatment of puerperal pyæmia I wish to limit myself to pyæmia in the narrower sense of the word—that is, to that form of puerperal infection which is propagated by way of the venous circulation, is characterised chiefly by more or less frequent rigors with sudden high rises of temperature, and almost invariably leads, after a more or less acute course, to a fatal termination by septic embolisms in the lungs or other internal organs. This form of puerperal infection is fortunately very rare now, but where it occurs it has lost nothing of its former terror, and I believe I am expressing the view of all those who have had to deal with these cases that all our efforts of medical and general treatment, including the injection of anti-streptococcic serum, have been disappointing and have seldom succeeded in averting the fatal termination in a fully-developed case.

Can surgery do anything in these hopeless cases? Within the last 10 or 12 years the treatment of pyæmia by ligature of the main venous trunks connecting the primary seat of the infection with the circulation has become an established method in surgery and especially in cases of pyæmia originating in infectious disease of the transverse sinus this method has given highly satisfactory results if only employed early enough. A few cases have also been recorded where pyæmia caused by some septic process in the extremities has been cut short by the timely ligature or excision of the main venous trunk of the limb and the question arises how far this mode of treatment could be applied to pyæmia originating from the uterus in its puerperal state. Undoubtedly the difficulties here are very great. It is known only too well that very often in these cases pyæmia is associated with other forms of septic infection, spreading along the lymphatic channels or leading to a direct absorption of toxins; but even in uncomplicated cases of pure pyæmia we have to deal, not with a single trunk, as in the case of the jugular or femoral veins, but with the large uterine plexus, the blood of which is collected by four deep-seated veins—the two internal iliac and the two ovarian veins—all of them difficult of access. Moreover, in exceptional cases only can it be ascertained which of these four vessels are the channels of infection and would require ligature, so it is not astonishing that a few attempts made by Freund and Bumm to treat puerperal pyæmia by ligature of the efferent veins have not succeeded in saving the patient.

The whole subject has lately been treated in a masterly manner in a paper by Trendelenburg.[1] In this paper Trendelenburg gives a lucid *résumé* of the pathology and of the anatomical conditions associated with puerperal pyæmia and also discusses the frequency with which each of the two internal iliac and ovarian veins take part in the dissemination of the septic process. The route by which the surgeon may reach these vessels and the method by which they are dealt with are also clearly demonstrated. Unfortunately, most of Trendelenburg's patients came under his observation far too late and in four cases in which he had ligatured the veins he was unable to save the patient's life; but his fifth case—a case of more chronic character—improved after ligature of the right internal iliac vein and recovered completely when, after a relapse four weeks later, the right ovarian vein had also been ligatured. I am now able to add to Trendelenburg's case a second successful one and this time a case of rather acute character. As the subject is an important one I venture to give the full history of the case.

The patient, aged 28 years, was admitted into the German Hospital on Dec. 15th, 1902, with the following history. She had had three children and was pregnant, for the fourth time, since August, 1902. The pregnancy had taken a normal course till four days before admission, when she had a great deal of pain in the abdomen and lost much blood. Rest in bed and medical treatment did not bring relief. On admission the patient looked very ill, had a temperature of 101·2° F., and was losing blood rather profusely. Shortly afterwards a five-months fœtus was expelled. As the after-birth did not follow and as there was considerable hæmorrhage the placenta was detached manually (under strict antiseptic precautions) and the uterus was washed out with a hot solution of lysol; the uterus contracted well and all hæmorrhage ceased. When I saw the patient next morning she was in a satisfactory condition, but soon afterwards the temperature began to rise and the discharge became fœtid. On the 19th there was a severe rigor, the temperature rising to 105·4°. Uterine douches, cold baths, and injections of anti-streptococcic serum were without avail and the temperature remained high (104° in the evening) till the 23rd. On that day I put the patient under an anæsthetic, dilated the womb, and scraped away a few shreds of decomposed placental tissue; this was followed by considerable improvement, the temperature remaining much lower and the general strength of the patient distinctly increasing, but on the 30th with a fresh rigor the temperature rose to 105°. From that date the rigors occurred every day, the temperature rising as high as 106·4° and the patient's strength gave way visibly; anti-streptococcic serum and subcutaneous saline injections were used without any effect and the case assumed a very hopeless aspect. While the patient's general state gave cause for the greatest anxiety the local condition of the pelvic organs was distinctly improving, the uterus had contracted, there was no more fœtid discharge, and no exudation or accumulation of pus could be detected in the pelvis. On Jan. 2nd, 1903, an indistinct fulness was noticed in the left inguinal region on a level slightly below the navel. It was at first attributed to an accumulation of fæcal matter in the sigmoid flexure, but it remained unaltered after thorough evacuation of the bowels. During the next few days it seemed to increase and became slightly tender on pressure. The possibility of this fulness being due to thrombosis of the ovarian vein was discussed but it was impossible to be certain on that point. On the 5th the patient had two rigors, the temperature rising to 105·2° and 104·4° respectively. On the 6th, the patient being then in a quite desperate state, I examined her once more under an anæsthetic and made sure that there was nothing within the pelvis to account for her conditon. I then carried out the following operation.

An incision was made from the tip of the eleventh left rib to the anterior iliac spine and thence forwards and downwards parallel to Poupart's ligament. The muscles and transverse fascia were divided and the peritoneum was stripped off from the underlying structures; this was easy enough at first, but nearer the middle line the peritoneum

[1] Münchener Medicinische Wochenschrift, 1902, No. 13th.

was more adherent. Before proceeding any further a small incision was made into the peritoneum at the lower angle of the wound to ascertain the condition of the left appendages, which were found to be perfectly healthy. The process of stripping off the peritoneum was then continued till the swelling or rather fulness which had been felt was fully exposed. It proved to be the considerably thickened and dilated ovarian vein. By very gentle manipulation the vein was separated from the ureter to which it was firmly adherent and traced upwards to its entrance into the renal vein; about half an inch below the renal vein two ligatures were passed round the ovarian vein and the vessel was divided between them. The vein was then cleared in the lower part of the wound till its whole course was fully exposed from its exit from the broad ligament to the point of division. The vein was now slit open and a fœtid mass of softened thrombus was removed from its interior; several small accumulations of pus which had formed in the thrombotic mass were evacuated. There was hardly any bleeding. The large wound was then well washed out with sterilised water, a few sutures were put in at the lower and at the upper angle, and the rest of the cavity was lightly plugged with iodoform gauze.

The effect of the operation was quite surprising. No more rigors occurred. On the evening of the operation and on the following evening the temperature was still 101°, but from that time it remained normal. The large wound healed slowly but without any mishap and the general condition improved very rapidly. From Feb 5th she was able to leave her bed and early in March, the wound having completely healed, she left hospital strong and well.

I will admit at once that it was an exceptional circumstance in this case that only one of the four large venous trunks coming from the uterus was affected, and it is hardly to be expected that many cases will be equally favourable. In my case I did not expose and tie the internal iliac vein, since a careful examination under an anæsthetic had failed to detect thrombosis or accumulation of pus in the pelvis; but if I had thought it desirable to ligature the internal iliac vein it would have been easily accessible from the wound which would only have required some prolongation in a downward and inward direction. Another favourable coincidence was the slight fulness which was noticed in the left inguinal region by which the site of the lesion was indicated. Where this symptom is absent I would not hesitate to expose the ovarian vein on both sides.

The operation itself should offer no particular difficulties, except perhaps in very stout women; if only the incision is of sufficient length the ovarian vein can easily be reached; in clearing the vein great gentleness is necessary, so that no fresh thrombi may become detached and carried away into the circulation. The ligature of the central end should be done first and should be applied as high up as possible. The most radical treatment would then be the excision of the whole venous trunk, but where this is difficult on account of adhesions to the surrounding structures it is sufficient to incise the vein in its full length and to clear away all pus and decomposed thrombi; in this case the wound would naturally have to be left open to heal by second intention. Where total excision has been feasible and the septic material from the vein has not come into contact with the surface exposed there is, of course, no reason why the wound should not be closed completely.

I am well aware that the publication of one isolated successful case of this kind is of comparatively little value and that a great deal more practical experience is required before this method may claim an assured place in surgery. But puerperal pyæmia is rare now and a long time may pass before the individual surgeon has an opportunity to collect more experience in this operation. I therefore think that I am justified in publishing the details of this one case which may encourage surgeons to a more active treatment in this otherwise practically hopeless class of cases.

Finsbury-square, E.C.

HEALTH OF ILFRACOMBE.—Dr. E. J. Slade-King, the medical officer of health of the Ilfracombe urban district, in his annual report for 1902, which has just been issued, states that during the year the general death-rate was 13·3 per 1000, but excluding non-residents it was 11·3 per 1000. The birth-rate was 16·22 per 1000. The infant mortality per 1000 births was 78·5.

## AN EXAMPLE OF DIRECT INFECTION IN TYPHOID FEVER.

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THE part played by personal infection in the spread of typhoid fever has hardly yet received at the hands of the profession at large the attention which it deserves. Nevertheless, in our fever hospitals, as Dr. E. W. Goodall and Dr. F. Foord Caiger and others have shown, it is by no means infrequent for nurses thus to acquire the disease, while among our poor, where overcrowding is rife and where the mother has both to prepare the food for the family as well as to nurse the sick, direct infection is common. In his valuable Milroy Lecture on Typhoid Fever, delivered last year before the Royal College of Physicians of London, these points were insisted upon by Dr. W. H. Corfield,[1] and I may here therefore merely again recall the result obtained by Dr. Alfred Hill of Birmingham,[2] who in one year traced one-seventh of all the cases of typhoid fever in the city of Birmingham to this source. Dr. J. Niven of Manchester has also obtained a very similar result. Nevertheless, this factor in the spread of typhoid fever has hardly yet obtained general acceptance, and the publication of the following striking instances may not, therefore, be without value. Certain of the patients were under my care at the Metropolitan Hospital. For the notes of the other cases I am indebted to my colleagues on the staff of that hospital, and to Dr. H. E. Cuff, medical superintendent of the North-Eastern Fever Hospital, Dr. L. T. Fraser Bryett, medical officer of health of Shoreditch, and Dr. H. Meredith Richards, medical officer of health of the county borough of Croydon, I am also indebted for kindly information. To all I desire to express my hearty thanks.

The family in which the epidemic here dealt with originated consisted of father, mother, three daughters, and two sons. All were attacked and two of the daughters died. They occupied three rooms in a house not far from the Metropolitan Hospital, consisting of a kitchen and living room on the ground floor and two bedrooms above. The first case being undiagnosed, no attempt whatever was made at isolation and no precautions were taken to prevent the spread of the disease. As we shall see, the little epidemic was limited to this house and those connected with it, there being no typhoid fever in the immediately surrounding neighbourhood. The first person attacked was a daughter, aged 15 years, who sickened during the latter part of the second week in September. Her illness, which was thought to be tuberculous ulceration of the intestine, consisted in fever, prostration, vomiting, great diarrhœa, and towards the end delirium, the evacuations being passed under her. She died on Oct. 15th, and in the light of subsequent events there can be no doubt that her illness was typhoid fever. She was buried on the 20th. A few days before her death one of her sisters, a child aged eight years, who had been sleeping with her during a part of her illness and even towards the end was occasionally laid upon her bed, began to ail. On the 23rd this patient was taken to the Metropolitan Hospital and was found to be suffering from typhoid fever ("spots"). She was certified and was admitted into the North-Eastern Fever Hospital. At about the same time also the mother, aged 35 years, who had done most of the nursing, began to sicken. On the 28th she attended at the Metropolitan Hospital and Widal's reaction proving positive she was certified and was admitted into the Great Northern Central Hospital. On Oct. 19th one of the sons, aged 11 years, began to be languid and to have anorexia and headache. On the 25th "spots" were present and he was admitted into the Metropolitan Hospital. The next person attacked was an aunt, aged 23 years, who had gone early in October to

[1] Milroy Lectures, 1902, pp. 133–135. At the commencement of his first lecture Dr. Corfield advances cogent reasons for retaining the term "typhoid fever" as opposed to the more modern term "enteric." With this desire I am in cordial agreement, and would recall that another argument for retaining the old name is the occurrence of instances of typhoid fever without intestinal lesion. In such cases the term "enteric" is a misnomer.

[2] See the writer's Goulstonian Lectures, p. 103. London: Churchill, 1900.

assist the family when the first case of illness occurred. In addition to cooking she emptied the typhoid evacuations and washed the soiled sheets and blankets of her niece. It is not therefore hard to see how she was infected. On Nov. 5th she came to my out-patient department at the Metropolitan Hospital, having been ill for two or three weeks, and saying that she believed that she had caught typhoid fever. On the following day the Widal reaction proving positive she was admitted. On Nov. 2nd the father, aged 36 years, began to complain of headache and nausea. On the 7th I saw him at the hospital and admitted him. The Widal reaction was positive and he had a typical attack of typhoid fever followed by a relapse.

The incubation period of typhoid fever being from 11 to 14 or 15 days (sometimes longer)[3] we may assume that the daughter who was the subject of the second case, the mother, the son, and the aunt were all infected through the first patient, no attempt at isolation having been made, and the aunt having emptied the evacuations, washed the soiled linen, and also prepared the food. The father may have been infected from this patient or from some other member of the family before the removal of such member to the hospital. The outbreak, however, did not stop here. On Oct. 20th the second son, aged eight years, on the day of his sister's funeral had been sent to stay with an aunt at Croydon. On the 23rd he began to ail and was sent to the Croydon Hospital. His exposure to infection not being known he was thought to be suffering merely from "dyspepsia." His blood, however, examined on Nov. 21st, was found to give a "fairly complete reaction within one hour," while a month later no reaction at all could be obtained. As we shall see this was probably a very mild case of typhoid fever which directly infected the two succeeding ones. Next, on Nov. 12th, a boy, aged 13 years, a cousin of the last-mentioned patient and living in the same house, was taken ill. His symptoms at first suggested influenza but diarrhœa developing later typhoid fever was suspected. His blood was tested on Dec. 21st and the Widal reaction proved positive. Lastly, on Nov. 17th the third sister, aged one year and four months, and the only member of the family as yet unaffected, was attacked. She had been removed from Haggerston to her aunt's house at Croydon on Oct. 28th, whither her brother, the subject of the seventh case, had preceded her. On Nov. 17th she was suddenly taken ill and on the following day she was admitted into the Metropolitan Hospital where she died on Dec. 10th from typhoid fever.

The sequence of events in the last three cases is not quite so clear as in the earlier ones. But Dr. Meredith Richards, who has kindly given me all information after going fully into the matter, concludes as follows:—

> On Nov. 21st I was inclined to disregard the reaction noted in the case of the boy [for details see below, Case 7] and was not aware that there had been any illness in the family. In the light of subsequent events I am now disposed to consider that the attack of dyspepsia for which the boy attended the hospital from Oct. 23rd to Nov. 27th was really extremely mild typhoid, and that he infected his cousin who was taken ill on Nov. 12th as well as his sister who was attacked on Nov. 17th. Of course it is possible that the sister was infected in London, but as she left home on Oct. 28th, and was well until Nov. 17th, this hypothesis does not seem as plausible as the former.

This conclusion seems justified by the facts, especially if we remember that the partial Widal reaction noticed in the seventh case on Nov. 21st had disappeared a month later, and that with no special prevalence of typhoid fever at Croydon at the time[4] other sources of infection are rendered unlikely.

Such then are the facts dealing with this little epidemic. They point so closely to direct infection that any other hypothesis seems to be unlikely. Typhoid fever was not prevalent in Haggerston at the time, as the following extract from a letter kindly written to me by Dr. Fraser Bryett proves. Writing on Nov. 14th he says:—

> I have no knowledge of any other case of enteric fever in the district immediately surrounding the house occupied by the —— family and have no reason for suspecting milk, water, or the sanitary arrangements of the dwelling itself.

These sources of infection being excluded the little epidemic must be regarded as a marked example of personal infection in typhoid fever, every member of the family being attacked and in addition two outsiders with whom the patients were brought in contact. How the first patient acquired the disease must remain unknown, but that the succeeding cases were due to direct infection can hardly admit of question. On Oct. 25th and again in November the house was thoroughly disinfected and the bedding was burnt. Though at once reoccupied no further cases of the disease occurred.

The following is a brief outline of the clinical history of the cases referred to.

CASE 1.—The patient was a girl, aged 15 years. In the latter part of the second week in September she was observed not to be in her usual health. During the third week she went to Margate for five days but came back worse. On Oct. 1st she took to her bed, suffering from fever, prostration, vomiting, and great diarrhœa. For a week before her death she was light-headed and passed everything under her. She died on Oct. 15th. The case being unrecognised no precautions were taken.

CASE 2.—A sister of the patient in the foregoing case, aged eight years, began to ail a few days before the death of the last patient, with whom she had slept during part of her illness. On Oct. 16th she complained of headache and sore-throat, on the 20th there was cough, and on the 22nd vomiting and diarrhœa supervened. She was taken to the Metropolitan Hospital on the 23rd. The temperature was 102° F. and there were "spots" on the abdomen. The patient was sent to the North-Eastern Fever Hospital. While there, as Dr. Cuff has kindly informed me, she suffered from a mild attack of typhoid fever followed by a mild relapse. The temperature reached its normal point on Nov. 14th and remained so. The patient did not suffer from diarrhœa. The Widal reaction was positive. On Dec. 16th she was discharged well.

CASE 3.—The mother of the above two patients, aged 35 years, began to suffer shortly before the death of her daughter (Case 1) from lassitude, anorexia, and headache; later a little diarrhœa and abdominal pain occurred. When seen at the Metropolitan Hospital on Oct. 28th the temperature was 101° F., the pulse was 120, and the respirations were 32. The abdomen was full and one or two doubtful "spots" were seen. Widal's reaction, 1 in 30, was positive in half an hour and the patient was admitted into the Great Northern Central Hospital. Here (so I have been kindly informed through the courtesy of the medical staff) her temperature remained high for several days and then it gradually fell, reaching normal on Nov. 6th. It then rose again, apparently in a relapse, reaching normal on Dec. 1st and remaining so. The patient had slight diarrhœa. On Dec. 25th she was discharged well.

CASE 4.—A son of the last patient, aged 11 years, began on Oct. 19th to be languid and to have anorexia and headache, and on the 25th was taken to the Metropolitan Hospital. The temperature was 102·7° F. The spleen was palpable and "spots" were present. The patient was admitted under the care of Dr. A. Haig. He had a mild attack (constipation), the temperature falling to normal by Nov. 2nd. On Oct. 31st Widal's reaction, 1 in 30, proved positive in half an hour. From Nov. 11th to 26th the patient had a mild relapse but on Dec. 28th was discharged well.

CASE 5.—An aunt of the last patient, 23 years of age, went at the end of the first week of October to assist the family at the house where the foregoing cases occurred. On Nov. 5th she came to my out-patient department, saying that she had not been in good health for about three weeks and that for the last three days she had been worse, suffering from headache and abdominal pain. When seen her temperature was 101° F. and her tongue was furred but she did not look very ill. She herself diagnosed typhoid fever caught from the other members of the family. On the 6th the temperature was 101° and the spleen was palpable but there were no "spots." Widal's reaction, 1 in 30, was positive in ten minutes. She was admitted under the care of Dr. O. A. Browne. The patient had a mild attack, her temperature reaching normal on the 24th, after which she made an uninterrupted recovery. Numerous spots developed when in the hospital. Constipation was present. Th ugh she was three months pregnant she did not abort. On Dec. 28th she was discharged well.

CASE 6.—The husband of the patient in Case 3, aged 36 years, had been quite well till Nov. 2nd, when he complained of headache and nausea and some abdominal pain. On the

[3] Corfield: Loc. cit., p. 29.

[4] Dr. Meredith Richards writes: "We had as usual very little typhoid fever in Croydon last year and there were only 19 notified cases in the whole town (population 137,917) during the fourth quarter. None of these were associated in any way with the —— family or were in the same immediate neighbourhood."

7th he went to the Metropolitan Hospital, himself diagnosing typhoid fever. The temperature was 100° F.; there were no "spots." On the 8th the temperature was 100·2° and the spleen was just palpable. He was admitted under my care. On the 9th Widal's reaction, 1 in 30, proved positive in ten minutes. On the 12th Widal's reaction, 1 in 100, was positive in 20 minutes. The patient had a very mild attack (no "spots" or constipation). The temperature reached normal on the 15th, but immediately it began to rise again in a short relapse. This lasted from Nov. 6th to Dec. 1st (no "spots" and no diarrhœa). On Jan. 11th, 1903, he was discharged well.

CASE 7.—A son of the last patient, aged eight years, was on Oct. 20th taken to an aunt's house at Croydon. On Oct. 23rd he was ailing and was taken to the Croydon Hospital where he attended as an out-patient. His connexion with cases of typhoid fever not being known, he was thought to be only suffering from dyspepsia. His aunt refused to take him to the Metropolitan Hospital to be examined. On Nov. 21st Dr. Meredith Richards having heard of his exposure to infection examined the blood with the following result: "1 in 20, fairly complete agglutination; 1 in 50, slight; 1 in 100, *nil*." On Dec. 25th the blood gave no reaction at all. This case was in all probability one of extremely mild typhoid fever and probably it was the source of infection in the two following cases.

CASE 8.—The patient, a boy aged 13 years, living in the same house as the last patient, was taken ill on Nov. 12th with symptoms which suggested at first influenza. Later diarrhœa developed and he was admitted to the Croydon Isolation Hospital as suffering from typhoid fever. On Dec. 21st, so Dr. Richards kindly informed me, Widal's reaction was as follows: 1 in 25, positive reaction in a quarter of an hour; 1 in 50, partial in one hour; and 1 in 100, very feeble reaction in one hour. On the 24th Widal's reaction, 1 in 50, was positive in a quarter of an hour. The boy had a very mild attack and completely recovered.

CASE 9.—The patient, a child, aged one year and four months, a sister of the patients in Cases 1, 2, 4, and 7, was on Oct. 28th taken to her aunt's house at Croydon. On Nov. 17th she was suddenly taken ill with shivering and vomiting and there was some diarrhœa. On the 18th she was admitted to the Metropolitan Hospital under the care of Dr. E. Cautley. The temperature was 102·8° F. and there was some bronchitis. No "spots" were visible and the spleen could not be felt. On the 21st Widal's reaction, 1 in 30, was negative. On the 22nd there was increased bronchitis and the temperature was still high. A second Widal's reaction, 1 in 30, was negative. On the 28th Widal's reaction, 1 in 30, was positive in ten minutes. On Dec. 1st Widal's reaction, 1 in 100, was positive in half an hour. The child remained very ill with high temperature, diarrhœa, and bronchitis. The spleen was never felt and no "spots" were seen. On the 8th there was discharge from the left ear and on the 9th from the right ear. On the 10th the temperature was 104·7° and the patient succumbed. No post-mortem examination was permitted.

Devonshire-street, W.

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A CASE OF

# CONGENITAL PAROSTEAL SARCOMA IN AN INFANT ARISING IN CONNEXION WITH THE ACROMION PROCESS OF THE LEFT SCAPULA; REMOVAL; RECOVERY.[1]

BY HENRY J. CURTIS, B.S. LOND., F.R.C.S. ENG.,

SURGEON TO THE NORTH-EASTERN HOSPITAL FOR CHILDREN, HACKNEY-ROAD, N.E.; ASSISTANT SURGEON TO THE ROYAL HOSPITAL FOR CHILDREN AND WOMEN, WATERLOO BRIDGE-ROAD, S.E.

THE patient in this case was a male infant, aged five and three-quarter months, with regard to whom there was no family history of malignant disease or tuberculosis. As to the possible influence of traumatism, it may be stated that no instruments were required during delivery, labour being perfectly normal.

At birth a tumour of the size of a small hen's egg was noticed over the left shoulder, the skin covering it being slightly red. The size of the tumour had rapidly increased shortly before the child was admitted into the North-Eastern Hospital for Children, Hackney-road, N.E., on Dec. 31st, 1902, when five months old, and he was then seen to be fairly well nourished. Whilst under observation in the hospital for three weeks the swelling over the left shoulder increased in size by one and a half inches from before backwards, and by one inch in circumference. The measurements which were taken two days before the operation showed a circumference of 11 inches and its length from before backwards over the top to be nine inches. The tumour formed for the most part a smooth rounded swelling of the size and shape of a rather large orange. Somewhat constricted off from the main mass at the anterior and inner (median) extremity was a smaller swelling of about the size of a walnut, with several smaller rounded or ovoid nodules springing from its outer surface, of the size of pigeons' eggs. These smaller ovoid nodules felt like very tense cysts, the consistence of the major part of the tumour being firm and elastic. There were three areas, one in front and two on the outer and posterior aspect, where definite fluctuation seemed to be present. The tumour extended from the left clavicle, below and in front, to just above the lobule of the left ear. Anteriorly it extended to the left sterno-mastoid muscle, but was moveable over it. Behind and below it descended over the spine of the left scapula to within one and a half inches of the inferior angle. Externally it reached to the outer end of the left clavicle, where it appeared to be attached. It was quite free as regards that bone elsewhere. (Actually it proved to be attached to the outer end of the acromion.) The tumour could not be moved over the deep structures apart from the scapula. In the skin over the upper part were several large veins and there was a small but distinct nævus over the most prominent part of the swelling.

The operation was performed on Jan. 23rd, 1903, under chloroform and then ether. The tumour was readily removed through an incision made from before backwards over the top of the swelling. The only place where adhesions of any note were met with was at the lower border of the acromion process and the adjacent inferior border of the acromio-clavicular articulation. Three small glands were excised from above the tumour. Some redundant skin required removal and a few vessels of small size were ligatured. The wound was drained through the lower angle of the wound, elsewhere being closed. During the operation, though there was comparatively little hæmorrhage, there was considerable shock and hypodermic injections of strychnine and ether and a rectal injection of brandy and saline solution were found necessary. The rectal injection was repeated after the operation, owing to the patient's very collapsed condition. On the day after the operation there was free serous discharge through the drainage-tube, which was shortened. Two days later the drainage-tube was removed, some effused blood clot being expressed out from the wound. A week later all the stitches were removed. The patient left the hospital a week later, on Feb. 8th, with perfectly normal temperature. The wound was healed and all the effused blood had become absorbed; the skin, however, remained slightly discoloured.

On Feb. 13th the child was brought to the hospital in a feeble condition and a gland an inch and an eighth in length was noticed for the first time in each groin and another gland about three-quarters of an inch long in the right axilla. In the left axilla there was no glandular enlargement evident and the wound remained soundly healed. The feeble condition of the child and the enlarged inguinal glands, taken together with a rise of temperature, reported by the mother to have been persistently above 101° F. for the previous week, made one suspect the occurrence of general invasion with sarcoma. However, by the 28th the child's general condition was much improved and the enlarged inguinal glands had returned to the normal size.

The tumour removed was definitely encapsuled, but the capsule was very thin and almost absent on the deep aspect. Cut section showed the tumour to be lobulated, of a white, somewhat granular surface, showing small areas of hæmorrhage, especially in places at the periphery. The consistence was distinctly soft and friable, the appearance generally being that of a typical sarcoma. Microscopically the growth proved to be a typical mixed small spindle- and round-celled sarcoma, the areas of small round-celled growth lying between the bundles of well-developed but small spindle

[1] A paper read before the Society for the Study of Disease in Children on March 20th, 1903. The tumour was shown and a preliminary communication was made to the society on Feb. 20th, 1903.

cells which contained the usual oat-shaped nuclei. There were a considerable number of thin-walled new vessels and areas of extravasated blood corpuscles were seen in various places. The small glands removed were unusually vascular, as seen in stained sections, and the loose fatty tissue around was even more congested, there being greatly dilated vessels and blood spaces, thus resembling a cavernous nævus. [There was no evidence, however, of such angiomatous structure in the primary tumour.] In the glands there was no evidence of infiltration with growth, and in this opinion I am happy to be confirmed by Mr. A. G. R. Foulerton, director of the cancer research laboratories at the Middlesex Hospital.

The points of interest in this case are: (1) the question of clinical diagnosis; (2) the remarkable ease with which the tumour shelled out in spite of its sarcomatous nature, accounted for by (3) the thin but well-defined capsule and the ill-defined seat of origin of the swelling, which was, in fact, a parosteal growth, as distinguished from a sarcoma originating in the cervical lymphatic glands; and (4) its congenital nature.

1. The diagnosis had first to be made between a benign and a malignant tumour. In favour of benign were the congenital origin and the physical signs already mentioned, notably the smaller nodules, feeling like tense cysts, and the fluctuating areas, which strongly suggested the condition to be one of hygroma or lymphangioma, the presence of the distinctly nævoid condition of the skin over the most prominent part further suggesting a mixed angioma and lymphangioma. The congenital origin, however, in no way contra-indicated malignancy and in favour of it were (1) the marked fixity of the tumour to the deep structures, so that movement independent of the scapula was impossible; and (2) the rapid growth since birth, especially during the three or four weeks prior to admission and operation.

2 and 3. The fixity and situation of the growth, which was of very considerable size for a child only five and three-quarter months old, made one anticipate some difficulty in its removal, which proved, however, to be comparatively easy, no large vessels being involved. The tumour was definitely encapsuled and was only slightly connected with the spine of the scapula, in all probability arising in the tissues immediately outside the periosteum, thus belonging to the rarer variety of peripheral (as distinguished from endosteal) sarcomata, and usually designated as "parosteal," which, as Clutton[2] remarks, only secondarily invade bone. Erichsen refers to what is apparently an exactly similar case in his own practice occurring in an adult and from the account, which I venture to quote in detail, it would appear to have been parosteal at its commencement, only secondarily invading the spine of the scapula. "A tumour as large as a full-sized turnip was removed from the shoulder of a middle-aged man, and was found to be slightly connected with the spine of the scapula. It presented all the characters of a spindle-celled sarcoma, consisting almost entirely of densely packed fusiform cells with oval or oat-shaped nuclei. A small mass re-appeared before the wound had completely healed. It recurred a second time and a portion of the spine of the scapula removed with the tumour showed that the growth had sprung from the cancellous tissue."[3] With regard to the actual situation of the growth, Mr. J. Bland-Sutton in his work on Tumours, speaking generally (not especially referring to children), says that the scapula is sometimes attacked by sarcoma usually springing from the body of the bone, the coracoid process exceptionally being the seat of origin. He speaks of sarcoma of the clavicle as being excessively rare. This is of some interest in the present case, as the slight connexion of the tumour with the acromion was close to the outer end of that process and therefore immediately adjacent to the lower margin of the acromio-clavicular articulation. Its parosteal origin is largely confirmed by the microscopical appearance, spindle celled sarcoma arising primarily especially in the periosteum and tissues in its neighbourhood, in fasciæ, and in the secreting glands, kidney, ovary, testis, parotid, &c. As a few small glands were also removed from above the growth it may be as well to state that primary sarcoma of the cervical lymphatic glands, as Mr. A. Pearce Gould says,[4] is not a common disease, is generally met with in adults at or past middle life, and consists microscopically of small round cells imbedded in a very fine wide-meshed stroma.

[2] Treves's System of Surgery, vol. i., p. 914.
[3] Erichsen's Surgery, vol. i., p. 1039.
[4] International Text-book of Surgery, vol. ii.

4. The congenital origin of this sarcomatous tumour in such a situation as the shoulder as distinguished from the internal organs is of some interest. According to Ashby and Wright the connective tissue group of tumours is that almost exclusively met with in children. Sarcomata appearing after birth are "rare in children, are most often seen in connexion with the periosteum, and often follow injuries."[5] The same authors also record a case of rapidly growing sarcoma as a sequel of acute periostitis. With regard to congenital sarcoma of the viscera the kidney is perhaps the organ most frequently involved, and Mr. F. T. Paul is of opinion that renal sarcomata are probably invariably of congenital origin.[6] The present writer had recently to perform hysterectomy in a child five months old for sarcoma apparently arising from the posterior lip of the cervix uteri, fungating into, and infiltrating the wall of, the vagina, exactly as described by the American gynæcologist Cullen.[7]

With regard to congenital sarcoma, apart from visceral disease, the present writer has seen two other cases operated on by other surgeons, one in connexion with the periosteum of the tibia, also in a child five months old; the other, also arising just above the ankle, in the extensor longus digitorum muscle. The first-mentioned growth formed an ill-defined and somewhat diffluent swelling just above and behind the base of the internal malleolus of the right tibia. It was of about the size and shape of a chestnut and its consistence was such as to suggest a hygroma. The microscopic appearance was reported to be that of a round-celled sarcoma with fibrous stroma. According to Mr. H. Stansfield Collier, however, tumours with such an appearance, microscopically, when occurring in young children, sometimes show an extremely low degree of malignancy. They recur very slowly, and grow very slowly, lasting for years. One such case, the patient being still alive, he has had under observation for at least four and a half years, and he prefers to look upon this class of growths as fibro-cellular rather than as being sarcomata in the usual sense of the word. This type should therefore be remembered in attempting to make a prognosis.

In conclusion, I wish to express my thanks to my colleague, Mr. Douglas Drew, for great assistance during the operation, and to the house surgeon at the North-Eastern Hospital, Dr. Pinniger, for his careful notes.

Harley-street, W.

[5] Diseases of Children, p. 764. (See also a paper by Dr. Hawthorne and the present writer in the Transactions of the Society for the Study of Disease in Children, vol. ii.)
[6] Ibid.
[7] This case is also quoted by Lewers in his work on Cancer of the Uterus.

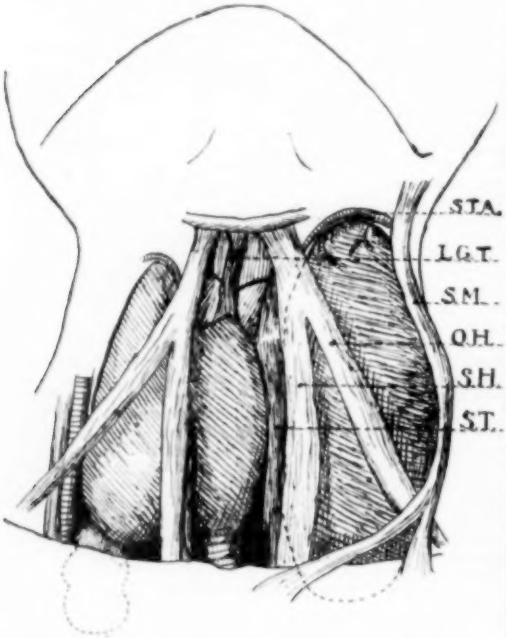
## A CASE OF GOITRE IN AN ABNORMAL THYROID GLAND.

BY HAROLD S. BARWELL, M.B. LOND., F.R.C.S. ENG.,
DEMONSTRATOR OF ANATOMY AT ST. GEORGE'S HOSPITAL; SENIOR CLINICAL ASSISTANT, HOSPITAL FOR DISEASES OF THE THROAT, GOLDEN-SQUARE.

THE anatomical relations of the thyroid body in this case are sufficiently peculiar to justify a rather full report.

The case was that of a dissecting-room subject, an old woman. Before dissection she appeared to have an ordinary parenchymatous goitre, the left lobe of the thyroid being much enlarged but maintaining its normal shape and presenting no evidence of adenomata or cysts. The isthmus seemed to be large and the right lobe was increased in size although it was smaller than the left. On dissection, however, the following condition was found. The left side of the neck was occupied by a smooth oval tumour which was broad below and rather pointed above. Its lower end was about an inch below the clavicle; its upper end reached the level of the hyoid bone; it was completely surrounded by a strong investment from the cervical fascia, from which it could easily have been shelled out. The sterno-mastoid, somewhat thinned, was on the outer side of the tumour; expanded over it lay the sterno-hyoid and omo-hyoid muscles. On the inner side it was completely separated from the thyroid gland by two layers of fascia which formed the capsules of the gland and tumour respectively and between the two ran the sterno-thyroid muscle, somewhat atrophied, but otherwise normal and distinct. The right lobe of the thyroid gland

was enlarged and had attached to the back of its lower extremity a lobulated process which passed vertically downwards into the thorax for rather more than an inch. This process was within the capsule of the gland, but separated from its substance by a thin layer of connective tissue. In the middle line was a lobe of the thyroid, in shape resembling a rather large left lobe, pushed over by the tumour; but from its apex a well-marked band of fascia, representing the levator glandulæ thyroideæ, passed up to the hyoid bone. Between these two lobes were the right sterno-hyoid and




S.T.A., superior thyroid artery. L.G.T., levator glandulæ thyroideæ. S.M., sterno-mastoid. O.H., omo-hyoid. S.H., sterno-hyoid. S.T., sterno-thyroid.

sterno-thyroid muscles lying in a shallow groove; the omo-hyoid passed obliquely over the right lobe. On the right side the carotid vessels and internal jugular vein were pushed outwards; the superior and inferior thyroid arteries and the recurrent laryngeal nerve were normal. On the left side the carotid was much displaced outwards and backwards and overlapped by the internal jugular vein. The superior thyroid artery arose normally and gave off a normal superior laryngeal branch; it was of large size and reached the apex of the tumour and passed down along its inner border, having exactly the same relations to it that a normal artery has to the lobe of the thyroid gland. There was no artery to be found at a similar part of the lobe in the middle line. No other artery was found to reach the tumour. The left inferior thyroid artery was very minute and ended in the tissues behind the capsule of the tumour. The trachea was somewhat flattened laterally and pushed over to the right. The left recurrent laryngeal nerve was in its normal position by the side of the trachea.

The tumour was examined microscopically and presented the structure of an old cystic goitre. At first sight this appeared to be a case of tumour originating perhaps in a accessory thyroid and pushing the thyroid gland over to the right. It is rare for tumours in the neck, other than thyroid tumours, to displace the carotids outwards.

Small isolated portions of thyroid tissue, called accessory thyroids, occur fairly often in the course of the thyro-glossal duct, and tumours in accessory thyroids have been not infrequently reported in other situations. C. Ogle[1] and Bernard Pitts[2] describe tumours resembling thyroid tissue microscopically behind the sternum. Several have been cystic, with a marked tendency to intra cystic growths, as cases reported by Pollard,[3] Edmunds,[4] Barker,[5] and Wolf.[6] In this case, however, the distribution of the left superior thyroid artery on the tumour suggests very strongly that the latter was developed, not from an accessory thyroid, but from the left lobe of the thyroid, congenitally ununited with the rest of the gland; and that the part of the thyroid in the middle line was an enlarged isthmus and pyramidal lobe. This view is strengthened by the presence of the fibrous band mentioned above, passing to it from the hyoid bone; such a band commonly passes to the apex of the pyramidal lobe.

The thyroid gland is developed from a median process of the pharyngeal hypoblast, which bifurcates below and forms the pyramidal lobe, isthmus, and part of each lateral lobe; the main part of each lateral lobe is formed by a lateral outgrowth from the pharynx. In man they are found to be fused together in an embryo of 13·8 millimetres in length,[7] or about the seventh week.[8] In most vertebrates they remain distinct, only in mammals do they become united into one organ.[9] In rare cases in man the isthmus is entirely absent and the two lateral lobes quite separate.[10] In many vertebrates, however, the median thyroid rudiment divides to form two distinct lateral glands,[11] but in this case the median lobe appears to be well developed and undivided.

In a good many specimens of goitre the tumour shows deep grooves in which the muscles lie,[12] but I have found none in which there were two distinct capsules and a muscle completely separating two parts of the gland. C. F. Marshall in a paper on Variations in the Form of the Thyroid Gland in Man[13] figures one specimen in which the pyramidal lobe is attached to the left lobe and above to the hyoid bone, the isthmus is absent, and the right lobe is separate. No doubt if this gland had become goitrous a similar condition would have been produced.

The illustration is from a sketch kindly made for me by Mr. W. R. Harris, student at St. George's Hospital.

Wimpole-street, W.

[1] Transactions of the Pathological Society, vol. xlvii., p. 224.
[2] Ibid., vol. xlii., p. 301.
[3] Ibid., vol. xxxvii., p. 505.
[4] Ibid., vol. xlvii., p. 222.
[5] Ibid., vol. xlvii., p. 225.
[6] Archiv für Klinische Chirurgie, Band xxxix.
[7] His: Anatomie Menschlicher Embryonen.
[8] Minot: Human Embryology.
[9] Quain's Anatomy, vol. i., part i., p. 111.
[10] Berry: Diseases of the Thyroid Gland.
[11] Wiedersheim: Grundriss der Vergleichenden Anatomie der Wirbelthiere.
[12] Museum of the Royal College of Surgeons of England, Nos. 2999 and 2906.
[13] Journal of Anatomy and Physiology, vol. xxix., p. 234, and Fig. 14.

# Clinical Notes:

## MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

### THE LOCAL TREATMENT OF PSORIASIS AND MOLLUSCUM CONTAGIOSUM.

BY JOHN WISHART, M.B., CH.B., B.SC. ABERD.

THE local treatment of psoriasis and molluscum contagiosum is a very difficult matter in general practice. The methods adopted to eradicate psoriatic patches are more or less successful. At the same time, if one could treat the initial papules successfully there would be no patches to treat. During the past few months a number of typical cases of psoriasis on which I could practise what I consider to be a new line of treatment have come under my care, and whilst the propriety of the treatment is still *sub judice* I think the success already met with warrants more extended application.

CASE 1. *Psoriasis of 28 years' duration.*—The patient was a married woman, aged 48 years. Her father and younger brother were subject to psoriasis; her mother and husband were free. The tendency of the family tree was towards psoriasis in the females, away from it in the males. The patient first suffered from psoriasis of both arms when 20 years of age. Her health was always good. She had six children all of whom were subject to "nettle-rash" when young. The spring and autumn brought out

fresh attacks, the patient being never entirely free. Pregnancy seemed to cause exacerbation during the first three months, after which psoriasis would fade almost entirely till suckling when a fresh attack came on. Patches were subjected to a liberal application nightly of the following ointment: 15 minims of strong solution of iodine, 15 minims of solution of carbolic acid, and one ounce of boric acid ointment, and they disappeared within a fortnight. Papules were gently pricked with a sterilised needle until they bled slightly, when a drop or two of liquor epispasticus were insinuated into each papule and also applied over its surface. This process was repeated every second night until three or four applications had been made. A small blister was the result in the case of each papule so treated, which, when left alone, went through the usual stages of healing attendant on any other form of simple blister. In other words, the papules were aborted and the areas of skin implicated again became normal.

CASE 2. *Psoriasis of 15 years' standing*.—The patient was a woman, aged 23 years. She had twice suffered from erysipelas of the right side of the face at a spot where psoriasis had subsequently broken out from time to time. The patient was chlorotic. April and October brought fresh exacerbations; the menstrual periods made no difference. The treatment adopted was the same as in Case 1. The papules disappeared entirely. Pricking followed by the application of liquor epispasticus and liquor acidi carbolici on alternate nights or carbolic acid alone checked the development of patches from the papular stage in the ratio of 3 or 4 to 1.

CASE 3. *Psoriasis of 37 years' standing*.—The patient was a man, aged 43 years. An uncle and a niece suffered from psoriasis; his wife and family were free. The nails were deformed on several occasions. One patch on the outside of the right leg measured 13 inches long. The skin was extremely thin; on lifting a fold of it between the forefinger and the thumb it seemed to be no thicker than silk or ordinary writing paper. Treatment with salicylate of sodium made a good impression; many of the larger patches instead of involuting in the centre cleared up along the natural furrows, clear lines of healthy skin appearing as valleys bounded on each side by psoriatic hills. This drug seemed to produce also an excellent crop of hair. Salicylism caused a cessation of this treatment. Myelocene (50 per cent.) was then tried for 14 days and full strength for other 14 days but it failed to make any impression. On Jan. 29th two papules and one small psoriatic patch were present on the right side of the face. These were well painted with liquor epispasticus without previous pricking, as was also a patch of the size of half-a-crown on the back of the wrist. On Jan. 31st the four affected areas were energetically blistered afresh. On Feb. 18th the papules and patch on the face disappeared entirely. On the 28th the patch on the wrist disappeared and left no mark.

These three cases illustrate the efficacy of the blistering method of local treatment and, therefore, if one could get rid of a present attack of psoriasis a succeeding one might be checked and aborted by the timely use of the method briefly indicated above. Other agents, such as strong nitric and glacial acids, seem to have an effect similar to that of liquor epispasticus.

During the past year only five cases of molluscum contagiosum came under my notice. Four of these occurred in female fishworkers and may therefore have resulted originally from the materials used in curing fish or from the fish themselves, as the areas of skin affected were the areas exposed whilst at work. Pricking and blistering produced a cure in each of the four cases. The fifth case occurred in a miner's wife and is at present under similar treatment.

Bedlington, Northumberland.

## A CASE OF INFLUENZA IN ADVANCED LIFE.

BY HUBERT M. EARLE, M.R.C.S. ENG., L.R.C.P. LOND., CAPTAIN, I.M.S.

THE following case seems to be worthy of record by reason of recovery occurring after very severe prostration, marked cardiac weakness, and extensive respiratory affection in an elderly person.

The patient was an Englishwoman, 74 years of age, and had been nursing her son, who was suffering from influenza. She was herself first attacked with the same disease on May 3rd, 1902. Her initial symptoms were typical. Severe prostration and cardiac weakness were present from the first and became accentuated after a few days. Coryza was followed by catarrh of the upper respiratory passages, which gradually spread, leading subsequently to broncho-pneumonia of almost the entire right lung with slight similar affection of the left apex. Slight pleurisy of the right side was found to have developed on the 7th. There was no rise of temperature until the 6th and it never rose above 101° F., the fever being of a remittent type. Defervescence occurred by lysis, normal temperature being reached on the ninth day of the illness. During the period of defervescence the heart and nervous system showed gradual and marked signs of improvement.

The treatment consisted chiefly of careful nursing, free ventilation, and frequent administration of light nourishment and stimulants. Medicinally stimulating expectorants were given and in the treatment of the heart weakness much benefit was derived from the administration of digitalis and spirit of nitrous ether. When the acute stage was over quinine and strychnia were given.

Bakloh, Punjab.

## NOTE ON A COMPLICATION IN SEVERAL CASES OF PNEUMONIA.

BY J. H. PORTEUS GRAHAM, M.R.C.S. ENG., L.R.C.P. LOND., SURGEON-CAPTAIN, ARMY MEDICAL RESERVE.

DURING the past 12 months five cases of pneumonia (acute lobar) that have been under my care have presented a somewhat unusual feature during the earlier days of the disease—namely, acute gastro-intestinal disturbance evidenced by vomiting and severe diarrhœa. The patients were adult males previously healthy serving in three home stations widely remote. In each case the signs and symptoms were typical of acute lobar pneumonia limited to the base of one lung. Crisis is sometimes preceded by diarrhœa but the gastro-intestinal disturbance in these cases came on with the onset of the pneumonia and persisted during the first four days of the disease. Four patients recovered and one died; the fatal event took place on the sixth day of the illness and was due to œdema of the lungs. The patient who died did not suffer more severely from the complication than those who recovered.

The explanation of the complication is not evident unless it was due to a coincident influenza, of which there were strong indications, and acute gastro-intestinal disturbance is not an infrequent feature in influenza. The gastro-intestinal phenomena might have raised a suspicion of commencing enterica.

Station Hospital, Warrington.

# A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. v., Proœmium.

## ST. THOMAS'S HOSPITAL.

### A CASE OF RECOVERY AFTER ACUTE DILATATION OF THE STOMACH AND INTESTINES.

(Under the care of Dr. C. R. BOX and Mr. W. H. BATTLE.)

A WOMAN, aged 27 years, was admitted to St. Thomas's Hospital under the care of Mr. Battle on Nov. 7th, 1901, and left the hospital on August 12th, 1902. The patient was admitted for the removal of an abdominal tumour which had been noticed for a period of about nine years. She was a strong healthy-looking woman with a good family and personal history and beyond the presence of a large multilocular ovarian tumour nothing abnormal was

discovered on examination. The tumour was removed in the usual manner on Nov. 12th, the operation being carried out aseptically and the wound being dressed with cyanide gauze. Two silk ligatures were required for the pedicle. Very little sponging was necessary. A continuous silk suture was used for the peritoneum, interrupted sutures of the same material for the fibrous structures, and interrupted sutures of fishgut for the skin.

During the two days following the operation her condition was as follows. The pulse varied from 104 to 108; the respiration from 18 to 32, and the temperature from 101° to 103° F. The abdomen became distended, the bowels were constipated, and an enema with castor oil had no effect. Pain was not severe. On the third day after the operation (Nov. 15th) another enema was given and five grains of calomel were administered by the mouth, but without effect. The temperature was 98°, the pulse was 112, and the respirations were 24. In the evening the abdominal distension was more marked and caused much discomfort but there was no vomiting. The pulse had risen to 140. The dressings were changed but the incision looked healthy; no dulness or unusual resistance was present but some tenderness was noted in the left iliac region. Calomel was again given without result. On the evening of the 16th a turpentine enema opened the bowels and relieved the distension. On the fifth night after operation (Nov. 17th) the temperature was 100·2° and a hard brawny swelling with much tenderness was noticed in the left iliac region extending into the left labium; this was incised on the following night (the 18th); it was superficial to the aponeurosis of the external oblique muscle. The pus had not extended to the median incision, which still appeared to be quite healthy but became infected three days later, so that a drainage-tube was passed between the lateral incision and the lower part of the operation wound. The distension of the upper abdomen became even greater, was very distressing to the patient, and was little relieved by medicine. On the 22nd the abdominal distension was extreme and diarrhœa had been present for four days. The tongue was red, cracked, and dry. The pulse was 136, the respirations were 28, and the temperature was 101°.

Dr. Box saw the patient with Mr. Battle on Nov. 21st. The stomach was then evidently much dilated, the epigastrium being very prominent, and a ringing coin sound was obtained from the region of the left nipple across to the right hypochondrium. On palpation a sensation of fluid resistance was appreciable. There was no vomiting. It was therefore decided to use gastric lavage twice a day and to alter the position of the patient, so she was turned on her right side semi-prone instead of being kept in the recumbent position, and the foot of the bed was raised. Hypodermic injections of liquor strychninæ (three minims) were given every six hours and the amount of fluid given by the mouth was restricted. By these means the gastric distension was much relieved, but the diarrhœa persisted and became the predominant feature with considerable bodily weakness and emaciation. On the 28th it was noted that the diarrhœa was getting worse and that now the patient had some loss of control. The stomach when tested by "coin" percussion extended to the highest point of the iliac crest and as high as the apex beat. The patient was very thirsty before lavage was commenced but was not so now. On turning well to the right side gurgling in the region of the pylorus was heard. There was no succussion splash. The strychnine was stopped and opium was resorted to, both by the mouth and as an enema in order to check the diarrhœa, but with very little effect. The temperature chart had assumed a septicæmic type. This condition was further complicated on Dec. 8th (26 days after the operation) by an attack of acute inflammation of the right parotid gland. Glycerine and belladonna were applied and on the following evening two leeches gave much relief. On the 10th 10 cubic centimetres of anti-streptococcic serum twice a day were tried and apparently produced a favourable effect on the parotid inflammation for in two days' time the swelling and tenderness were less. The temperature was still irregular but not so high. No improvement took place in the diarrhœa, from six to ten motions a day being passed. That benefit was derived from the position of the patient was proved by the patient's statement that after lying on her back for a time she became somewhat distended and uncomfortable in the region of the stomach. On the 17th there was an irritable red rash about the upper part of the abdomen which was ascribed to the serum injections; it spread all over the body but had passed away by the 23rd. On the 30th the serum was discontinued as it appeared to be producing little effect on the general state. Two days later parotitis began again on the right side of the face. On Jan. 3rd the serum was again employed and by the 7th the inflammation had subsided. This treatment was continued for ten days. On the 30th two abscesses were opened in the abdominal wall to the right of the wound; they were the result of injections. On Feb. 22nd the legs were œdematous half-way up the calf, diarrhœa continued, there being from eight to ten motions daily (once 14), and the temperature was still irregular, being frequently 103° in the evening. About this time the wound in the left groin healed. During this month a course of sulphate of magnesia in large doses failed to check the diarrhœa. Rectal injections of sulphate of copper in four-grain doses also failed. On March 1st she had two rigors without apparent cause. During the second the temperature rose to 104·2°. On the 3rd the abdomen below the umbilicus was noted as distended, tympanitic, and tender. There was no evidence of a dilated stomach in the epigastric or left hypochondriac region. On the 7th there was another rigor, the temperature again rising to 104°. On the 9th izal was given internally and the diarrhœa began to improve, the number of actions of the bowel falling to four or five in the 24 hours, and it was evident that the patient was gaining strength. An improvement in the diet, however, gave rise to an increase in the temperature and fluid nourishment had to be resumed. On April 5th the right parotid region was for the third time slightly swollen and hard but since March 25th the temperature had not exceeded 99·4°, and now the bowels only acted once or twice daily. The lower extremities were, however, œdematous up to the hips and on the 23rd the flanks were also œdematous, whilst the abdomen continued very tense. On May 1st the condition was as follows. The abdomen was prominent, moderately tense, and glazed. The superficial veins were enlarged and extended upwards to the thorax. The blood flow in them was upwards. Occasionally peristalsis became evident in the epigastric region and was accompanied by gurgling sounds; the direction of the peristaltic movement was not definite. The stomach resonance extended up as high as the fourth costal cartilage on the left side, but it was impossible to say how much of the abdominal distension was caused by the stomach. A fluid thrill was obtained both in front and in the flanks, but more easily in the former position. The feet, legs, and thighs were highly œdematous and this œdema extended over the abdomen to the lower costal margin and some distance over the ribs posteriorly. The specific gravity of the urine was 1025; it was acid with a trace of albumin. Diarrhœa had ceased. On June 13th she could stand and walk without help, but was, of course, much emaciated. On the 30th peristalsis was still visible above the umbilicus. The abdomen was prominent and resonant. The outline of the stomach could not be made out but the "coin" sound was still widely diffused. On the 13th electrical treatment was commenced and continued for the remainder of the patient's stay in hospital. The veins of the surface were less prominent on August 7th, the stomach was still as low as the umbilicus and splashed a little. The swelling of the legs which had almost gone reappeared after she had been up for a short time. The general improvement was considerable before she left the hospital on the 12th. The patient presented herself for re-examination in January, 1903. There was then no evidence of gastric dilatation even after inflation. The lower part of the abdomen was rather prominent and the legs still showed a slight tendency to swell. The superficial veins of the lower extremities and abdomen were generally enlarged and tortuous, this enlargement disappearing in the lower costal regions. She was able to work most of the day without fatigue and had gained two stones in weight.

*Remarks by* Dr. BOX and Mr. BATTLE.—The occurrence of recovery after such extreme post-operative distension of the stomach, and possibly also of the colon, seems sufficient justification for the publication of this case. Such recovery must be very exceptional and, indeed, the complication itself in a marked and obtrusive form is a rare one. It is possible that a minor degree of gastric distension after operation is often overlooked, and it is noteworthy that

surgeons have long recognised the beneficial influence of stomach washing in some cases where distension and vomiting occur after abdominal operations. There can be little doubt that this complication followed septic infection of the wound. During the operation it was noticed that the left side was being too vigorously retracted and pressed upon, and the result was shown in the localised suppuration.

There are several points worthy of comment in the case recorded above. The gastric dilatation at the time when it was recognised was already very extreme, for the stomach area as mapped out by the "coin" sound extended from the region of the cardiac impulse to a line joining the highest points of the iliac crests and stretched laterally from the left mid-axillary to the right mid-Poupart line. At the same time vomiting, although present, was quite insignificant in amount. The semi-prone position was adopted in accordance with the theory already enunciated by one of us[1] that the dilated stomach after a time obstructs the exit of its own contents by exercising considerable pressure on the terminal portions of the duodenum in front of, and by the side of, the vertebral column. So soon as the proper position was adopted by our patient gurgling sounds were plainly audible in the pyloric region of the abdomen. Gradually increasing distension of the abdomen was noticed for a week before the diarrhœa set in and during this week the bowels were obstinately constipated. During the later part of the illness the gastric dilatation was less obtrusive and diarrhœa and great prostration were prominent symptoms. Attention is particularly drawn to this sequence of events because one theory attributes acute dilatation of the stomach to traction of the superior mesenteric vessels over the transverse portion of the duodenum and consequent obstructive compression of the bowel at this spot. This traction is attributed to a primary collapse of the coils of small bowel such as might conceivably accompany or follow severe diarrhœa. In our case, then, the evidence seems to negative this method of obstruction and we believe that the case belongs primarily to that class in which a dilatation results from wound infection and is later rendered extreme by stomach pressure on the duodenum. The small amount of albumin present in the urine after the operation may have been due to the infective process which was evidently at work, but it is also possible for the distended stomach to exercise pressure on the left renal vein. There was no albumin in the urine before the operation. The œdema of the legs and lower part of the trunk with dilatation of the superficial veins points to thrombosis in the inferior vena cava. This possibly originated in the pelvic or iliac veins and extended in the upward direction.

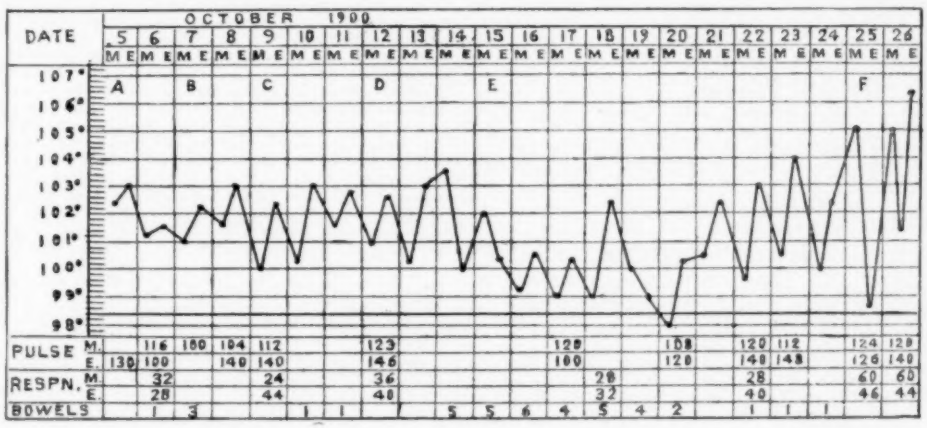
## HULL ROYAL INFIRMARY.

### A CASE OF SPINAL RHEUMATISM.

(Under the care of Dr. FRANK NICHOLSON.)

FOR the notes of the case we are indebted to Dr. Hunter, house physician.

The patient, a male, aged 33 years, was admitted into the Hull Infirmary under the care of Dr. Nicholson on Oct. 5th, 1900, and died on the 26th. He had been strong and healthy till five days before admission, with the exception of an attack of influenza two years previously, from which he had long entirely recovered. For 12 years he had acted as as out-porter for hotels and during that period had averaged two or three pints of beer daily but rarely anything else. Five days before admission he was feeling quite well till the evening, when suddenly in the hotel, "discussing a pint of beer and a pipe," his left upper extremity "dropped" down close to his side and the forearm flexed at right angles to his arm—the forearm being previously flexed at an acute angle to the arm. He tried to move the arm but could not, nor could he even move the fingers. There was no pain, loss of consciousness, vertigo, or faintness. About 12 hours later the patient awoke from sleep to find that his right arm was now quite useless. Both upper extremities were free from pain unless passive movement was attempted. 12 hours later the right leg similarly lost power and on the next morning the left leg could not be moved. Three days before admission the patient could not move hand or foot, but there was no pain unless the limbs were moved. Sleep was not disturbed and there were no rigors. The bladder and rectum were intact. For two days he could not feed himself in the least. A certain amount of movement was possible in the right leg two days before admission and the upper extremities began to recover at the same time. On admission he was bedridden. The urine was amber-coloured and acid with a trace of albumin; it had a specific gravity of 1013. The lungs were normal. The heart was somewhat enlarged. The first sound at the apex (best heard in the fourth interspace in the middle line) was loud and sharp, with a localised systolic bruit; the second sound at the base was rather impure. The pulse was regular, being about 100, of small volume and good tension. The arteries were rather degenerated. The abdomen was normal. The splenic area of dulness was a little increased but the organ was not palpable. Liver dulness was normal. The pupils were equal and of medium size and reacted to light and to accommodation. There was no nystagmus and extra ocular movements were free. There was no palsy of any cranial nerves. The visceral reflexes were normal. The knee-jerks were active on both sides and there was no clonus. The wrist and elbow-jerks were not elicited. The plantar reflexes were active. The cremasteric, abdominal, and thoracic reflexes




A, One drachm of compound powder of jalap. B, 20 grains of sodium salicylate every two hours; 30 grains of potassium bromide and 20 grains of chloral every six hours. C, 20 grains of sodium salicylate every six hours. D, Injection of 1/10th of a grain of strychnia *pro re nata*. E, 30 grains of carbonate of bismuth *pro re nata*. F, 10 grains of quinine three times a day.

[1] THE LANCET, Nov. 9th, 1901, p. 1259.

were sluggish. The soft palate reflex was present. Sensation everywhere and of all kinds was apparently normal. There was no wasting of muscles. All muscles of the extremities were more or less rigid, resisting movement in any direction, rigidity being overcome everywhere with a little force. There was no difference in the two sides. Absolute paralysis was not present as the patient was able to perform all movements of extremities but extremely slowly and painfully, grimacing the while, and complaining of cramping pains in the muscles. On admission the temperature was 102·4° F. and the respirations were 36.

The patient died three weeks after admission. The temperature was raised throughout, as shown in the chart. On Oct. 11th and 22nd there was no albumin in the urine. Two days after admission the loss of power had sufficiently disappeared to allow him to make an attempt to reach the lavatory of the ward alone. On the 8th he was at times queer, seeing visions and being afraid of imaginary people, but at other times he was quite sensible. The left knee was distinctly swollen on the 8th and he was then placed on salicylate of soda but without much effect. (See chart.) The sphincters were intact during the first two weeks, but during the last week urine and fæces were passed involuntarily. The amount of loss of power varied from day to day. The wasting was not great at first but towards the end of the illness emaciation became general. He could almost up to the time of death move his extremities to nearly full range of movement, though he grimaced a great deal at the time. He also suffered much from darting pains in the extremities. Several of the joints became painful and swollen for a few days. The knee-jerks were absent during the last ten days but the plantars remained exaggerated. The heart increased rapidly in area and the pulse became very quick (from 136 to 148), the systolic bruit remaining localised. Patches of rales came and went in the lungs. During the last week he was constantly delirious. Throughout there was much sweating.

*Necropsy.*—The post-mortem examination revealed chronic endocarditis of the mitral valve with evidence of recent endocarditis. Recent pericarditis with a little effusion was present. There were a few patches of catarrhal pneumonia in the lungs. The brain to the naked eye appeared to be normal. The spinal cord was not examined.

*Remarks by* Dr. NICHOLSON.—Rheumatic affections of the spinal cord are so uncommon that the few short notes of the above case may be of interest. The exact nature of the disease was not recognised till a week or two after the patient's death, when my attention was drawn to the chapters on the rheumatic affections of the nervous system in Dr. Archibald E. Garrod's treatise on "Rheumatism" where five or six cases of spinal rheumatism are described which were very similar to the one narrated above and I am satisfied that the case was one of spinal rheumatism.

# Medical Societies.

## OBSTETRICAL SOCIETY OF LONDON.

*Hydrosalpinx of an Accessory Fallopian Tube.—Ruptured Extra-Uterine Gestation.—Primary Infection of the Puerperal Uterus by Diplococcus Pneumoniæ.—Exhibition of Specimens.*

A MEETING of this society was held on April 1st, Dr. EDWARD MALINS, the President, being in the chair.

Mr. W. SAMPSON HANDLEY read a paper on a case of Hydrosalpinx of an Accessory Fallopian Tube due to Twisting of the Pedicle. He considered it doubtful if the existence of hydrosalpinx of an accessory tube had been proved. The specimen shown was conclusive in that it possessed a communication with the main tube and, like ordinary hydrosalpinx, was a retention cyst. Kossmann had described under the name "hydroparasalpinx" certain small cysts possessing a muscular wall, which he found in the broad ligament in association with tubal rudiments. These cysts had no communication with the main Fallopian tube. Kossmann did not bring forward any conclusive proof for his view that these cysts were distended rudimentary tubes. For purposes of comparison Mr. Handley described from personal observation the appearances seen in a section taken in the long diameter of an ordinary hydrosalpinx starting at the uterine end. The diameter was greatest, the thickness of the wall was least, and the tissues were most degenerate at the ostial end. The epithelium first losing its cilia became cubical, then flattened, and finally at quite an early stage disappeared altogether, except from the plicæ and in the subplical spaces. The plicæ were very persistent structures owing to their vascularity and stained well even when the wall from which they sprang was quite degenerate. After their disappearance the occurrence of subplical spaces, perhaps lined by flattened epithelium, might still show that the wall of the hydrosalpinx, although consisting of little but hyaline fibrous tissue, was a degenerate Fallopian tube. The hydrosalpinx of an accessory tube described that night was No. 4582 in the Pathological Series of the Museum of the Royal College of Surgeons of England. It was described as "a thin-walled pyriform cyst, developed under the broad ligament at the point where it is reflected over the Fallopian tube." The cyst was attached to the upper border of the tube, like a growing pear, by a very short twisted stalk. Its diameters were 2 2 centimetres by 1·4 centimetres. Its wall thinned progressively from the attached to the distal end, concurrently with an increase of diameter. Internally it was marked by branching fibrous-looking bands standing out in relief. When the Fallopian tube was distended with air the air escaped into the interior of the cyst. A microscopical section showed that the wall of the cyst was similar in structure to that of an ordinary hydrosalpinx. There was a well-marked muscular coat; plicæ and subplical lacunæ were seen. The tissues were degenerate towards the thin distal end. The cyst had, therefore, all the peculiarities of a hydrosalpinx. The history of the specimen was lost, but it was not devoid of clinical interest. A pyosalpinx of an accessory tube might lead to a fatal result. Pregnancy in an accessory tube had quite recently been recorded. It was therefore advisable to ligature and to remove an accessory tube, if one was found. The presence of plicæ and of subplical lacunæ in a cyst of the broad ligament had apparently not hitherto been described. The present communication was preliminary to one on the origin of broad ligament cysts, since Mr. Handley could bring forward evidence that many such cysts were derived from "rests" of the Fallopian tube.—MR. ALBAN DORAN congratulated Mr. Handley on his judicious criticism of current ideas concerning the origin of new growths in the region of the broad ligament and Fallopian tube. Kossmann's theory was of great importance; perhaps he was not strictly accurate when he implied that parovarian cysts and papillary cysts of the broad ligament all arose from tubal or Müllerian elements and not from relics of the mesonephron, but he was very possibly correct in ascribing the abundant free papillomata, which sometimes buried both broad ligaments, tubes, and ovaries, to tubal elements. If that view were correct it might account for the clinically innocent character of many cases of bulky free papillomata, notwithstanding formidable complications, which vanished when the growths were removed. The masses were hypertrophied tissue rather than neoplasms. Mr. Doran removed a very heavy pair of such outgrowths which nearly filled the abdomen nine years ago and the patient remained well. He asked Mr Handley if it were really justifiable to amputate a tube and mesosalpinx solely because accessory ostia and tubes were detected. Mr. Doran admitted, however, that these little growths were probably more than pathological curiosities, so that it seemed prudent to close an accessory ostium by suture of the adjacent serous membrane and to amputate accessory tubes.—Dr. HERBERT R. SPENCER did not think that it had been proved that the specimen shown was an accessory tube. He thought it was more probably an "antrum tubæ," a saccular dilatation of the tube in the situation of the specimen shown described by Roederer in "Icones Uteri Humani Gravidi" and figured in Montgomery's "Signs and Symptoms of Pregnancy." The "antrum" was not mentioned in modern books. Roederer asked whether it was not produced by pregnancy, but Montgomery showed that this was not the case by finding it in unimpregnated uteri. He (Dr. Spencer) had found it in pregnant cases but it was much more often absent. The "antrum" contained plicæ and, of course, was of the same histological structure as the tube, so that Mr. Handley's specimen could not be said to be a tube as a result of the histological evidence. It was pure hypothesis that the "accessory tube" had been closed by inflammation and

there was an absence of epithelium on the so-called fimbriæ in the specimen. It was, however, well known that an accessory ostium with perfect fimbriæ was not rarely met with in this situation and he thought both the antrum and the accessory fimbriated ostium were due to some developmental peculiarity. But he thought they might ask Mr. Handley to produce a tube approximately of the shape of the normal "tube" before speaking of an accessory tube. The sketches exhibited showed structures bearing a remote resemblance to "Fallopian tubes." He would suggest that further investigation should be made into the subject of the "antrum tubæ"—a suggestion first made by Roederer himself.—Mr. J. D. MALCOLM thought that Mr. Handley had proved that the cyst he described was a dilated accessory Fallopian tube. The fact that layers of peritoneum, muscle, fibrous tissue, and débris representing mucous membrane were found in the wall of a cyst, which communicated with the tube, seemed quite conclusive evidence. Mr. Handley would strengthen his argument if he could show that some of the closed cysts, which seemed similar to the one described, had also the various layers of tissue in their walls which were found in the Fallopian tube. Mr. Malcolm was much interested in the description of the microscopic appearances of the wall of an ordinary hydrosalpinx. The condition suggested to him that in the normal tube, towards the fimbriated end, the flow of its contents was probably towards the peritoneal cavity. The secretion of the tube (for it must have a secretion or there could be no hydrosalpinx) and effete epithelial cells cast off from the mucous surface would, if near the free end, find an easier exit towards that end than towards the uterus. The readiness with which an extra-uterine fœtation near the fimbriated extremity might be expelled into the peritoneal cavity was further evidence to the same effect. It followed that if any slight inflammation closed the fimbriated extremity of the tube the contents of the external portion, which were accustomed to flow outwards into the peritoneal cavity, would be able to escape only through the uterus, and if the vascular power were insufficient to propel the contents forward a hydrosalpinx would develop. The condition described by Mr. Handley, with the thinner-walled part near the fimbriated extremity of the tube, would follow.

Lieutenant-Colonel A. J. STURMER sent a short paper on four cases of Ruptured Extra-Uterine Gestation occurring in two women. In each instance the case was treated by abdominal section and a satisfactory recovery was obtained. The comparative rarity of extra-uterine gestation occurring twice in the same subject was discussed and the question of conservative treatment in dealing with tubal gestations was briefly reviewed.—The paper was discussed by Dr. CUTHBERT H. J. LOCKYER, Mr. DORAN, Dr. SPENCER, Mr. E. RUMLEY DAWSON, and Dr. ARNOLD W. W. LEA.

Mr. A. G. R. FOULERTON and Dr. W. F. VICTOR BONNEY communicated a short paper on a case of Primary Infection of the Puerperal Uterus by Diplococcus Pneumoniæ. They pointed out that this case was undoubtedly one of primary infection of the genital passages by diplococcus pneumoniæ occurring during the puerperium and they remarked on the extreme rarity of this form of puerperal infection. Similar cases had been recorded by Weichselbaum and by Bar and Tissier, but the last author's statements were not supported by bacteriological proof. Infection secondary to lobar pneumonia was probably much commoner and a case investigated by one of the authors was cited, in which diplococcus pneumoniæ was found in the uterus of a patient who died in the Middlesex Hospital from lobar pneumonia, premature labour having occurred on the second day of the disease.—The PRESIDENT gave a brief description of two cases of a similar nature which had occurred in his practice.

Dr. LEA showed two specimens of Double Tuberculous Disease of the Appendages removed by operation.—Mr. DORAN recorded his experience of such cases.

Dr. GROVES showed: (1) A Fibroid of the Uterus which appeared two years subsequently to the removal of both appendages; (2) a Uterus affected with Early Adenocarcinoma; and (3) a Distended Fallopian Tube due possibly to Extra-uterine Gestation.—The cases were discussed by Dr. P. HORROCKS and Dr. SPENCER.

Dr. W. C. SWAYNE showed: (1) Fibroma of the Vagina; and (2) Fibroid of the Uterus removed by Panhysterectomy.—Dr. HEYWOOD SMITH contributed some comments on the latter specimen.

## LIVERPOOL MEDICAL INSTITUTION.

*Morbus Cæruleus.—Idiopathic Dilatation of the Colon.—Amputation of the Upper Arm and Scapula.—Exsection of Two-thirds of the Fibula for Central Sarcoma.—Method of dealing with the Parietes in Abdominal Section.—Operative Treatment of Tuberculous Disease of the Knee.*

A MEETING of this society was held on April 2nd, Mr. RUSHTON PARKER, the President, being in the chair.

Dr. A. GORDON GULLAN showed a case of Morbus Cœruleus.

Mr. R. W. MURRAY related a case of Idiopathic Dilatation of the Colon occurring in a child, aged three years. The child had suffered from constipation and abdominal distension from birth and during the last 12 months the distension had become excessive, the abdominal girth measuring as much as 39½ inches. After abdominal section it was found that the sigmoid flexure and descending colon were enormously dilated, the bowel measuring six inches in diameter. The distended gut was excised, the transverse colon and the rectum being united end to end by simple suture. The result had been most satisfactory; the child had improved in health, and now suffered from neither constipation nor distension.—The PRESIDENT had never met with a similar case and congratulated Mr. Murray on his successful treatment.

Mr. ROBERT JONES described a case of Amputation of the Upper Arm and Scapula in a woman, aged 72 years, for Endothelioma of the Shoulder-joint. The patient complained of pain shooting down the arm and into the neck. There were limitation of movement and swelling, but no fluctuation, no enlarged veins, pulsation, or bony crackling. A series of x-ray photographs were taken which exhibited a blurred outline of the head and neck of the humerus, strongly suggestive of periosteal sarcoma. Three months after the onset of symptoms spontaneous fracture occurred. At the operation the growth was found to have originated within the upper end of the humerus, causing the spontaneous fracture. The fractured ends were friable, the glenoid cavity and surrounding muscular tissue having suffered invasion. Microscopically examined the growth proved to be an endothelioma. The patient made an uneventful recovery.

Mr. ROBERT JONES also described a case of Exsection of Two-thirds of the Fibula for Central Sarcoma. The patient was a girl, aged eight years. The swelling of the upper part of the fibula was firm and somewhat tender to pressure. There was no distension of superficial veins or bony crackling. There were no history of accident and very little pain or limp in walking. The limp had only been noticed a few weeks. The exsection was free and no functional disability followed. Mr. Jones emphasised the value of radiography in endosteal sarcoma which rendered the diagnosis sufficiently accurate to enable the surgeon to plan his operation beforehand as to exsection or amputation.—Mr. G. P. NEWBOLT emphasised the value of radiography in the early diagnosis of central bone growths.—The PRESIDENT drew attention to the diagnostic significance of neuralgic pain.—Mr. MURRAY spoke and Mr. JONES replied.

Dr. A. J. WALLACE read a note on a Method of Dealing with the Parietes in Abdominal Section. After a short review of the disadvantages entailed by the use of the median incision, even when combined with suturing in layers, and a brief mention of the procedures employed by Jonnesco, Juvara, Segond, and Abel, a method was described by which the onus of supporting fascial layers weakened by incision was thrown on to the uninjured rectus muscle. A vertical incision through the skin and subcutaneous tissues was made one inch from the middle line, usually over the left rectus. The anterior layer of its sheath was opened along its centre and the inner half of the divided sheath was separated from its muscle and drawn internally, the rectus itself being pulled outwards with retractors. The posterior layer of the sheath together with peritoneum and intervening tissue was then divided along a line corresponding to the middle line of the rectus. In closing the wound each layer was sutured separately. The method had been described in the literature of several countries but it appeared to be less used than its merits deserved.—Dr. H. BRIGGS said that the abdominal wall varied very considerably and special methods of incision through the sheath of the rectus must be considered in connexion with such variations, notably in widely separated and in closely apposed

or overlapping recti. The practical difficulty arose in connexion with a trustworthy suture of absorbable material for buried stitches in the superimposed layers of the abdominal wound.—Mr. W. THELWALL THOMAS had used the method mentioned in many cases. It took a little longer time than the usual median incision and there was occasionally some trouble from oozing of blood into the rectus sheath. He thought it a valuable incision and preferable to any sectional suturing of the ordinary median incision. He would not advocate it in emergency operations or septic conditions.—Dr. T. B. GRIMSDALE and the PRESIDENT spoke and Dr. WALLACE replied.

Mr. KEITH W. MONSARRAT read a paper upon Some Points in the Operative Treatment of Tuberculous Disease of the Knee, based upon 11 cases in which he had considered it necessary to operate. He first referred to the importance of the early recognition of tuberculous foci about the lower femoral epiphysis and of anticipating by early operation the usual invasion of the joint following these. He pointed out that it was difficult to estimate in any given case how near to the joint such foci had encroached and that they were readily accessible for removal without invading the joint. Of the cases operated on for joint disease one had ultimately had amputation performed, in one the disease was still present, and the rest were free from signs of local disease. In one case excision had been performed, in nine erasion, and in one a focus in the external condyle had been evacuated. In four of the cases erasion had to be repeated owing to recurrence, the result being ultimately good. The subject of the functional value of the limb after operation was next considered. The opinion was expressed that any procedure which interfered with the integrity of the quadriceps extensor was likely to be followed by troublesome flexion; a method of exposing the joint was described by vertical bisection of the ligamentum patellæ, the patella, and the lower part of the extensor which gave satisfactory access to all parts of the joint and left undamaged the functional integrity of the extensor apparatus.—Mr. MURRAY and Mr. NEWBOLT spoke and Mr. MONSARRAT replied.

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SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—A meeting of this society was held on March 20th, Dr. Henry Ashby being in the chair.—Mr. Henry J. Curtis (on behalf of Mr. Stansfield Collier) showed a Baby, born at the Eighth Month, two weeks after rupture of the membranes. There was extreme dimpling of the skin over the olecranon process and both sides of the knees and there was also lateral compression of the limbs and of the skull. The grooving observed over the right inferior maxilla and the lower third of one leg was accounted for by compression of the parts by the funis. The skin dimpling, it was suggested, was due to amniotic adhesions. The child presented other deformities.—Dr. G. A. Sutherland showed a case of Infantilism in a boy, aged 11 years. He weighed 28 pounds and his height was 39 inches. The body and the limbs were well-formed and the only indications of disease were a clubbing and blueness of the fingers. The expression of the face was infantile and the mental condition was backward.—Dr. G. E. Shuttleworth suggested thyroid treatment, although he admitted that the child manifested no marked signs of cretinism.—Dr. A. E. Sansom remarked that the absence of pronounced signs of congenital heart disease did not exclude that condition.—Dr. Robert Hutchison showed: (1) A girl, aged five and a half years, affected with Great Excitability, Incoherence, and Restlessness, and other Evidences of Chronic Mania; and (2) a baby, aged five weeks, suffering from Enlargement of the Left Side of the Tongue, Left Arm, and Left Leg. The case was apparently one of hemiatrophy.—The cases were discussed by Dr. Ashby, Dr. Shuttleworth, Dr. Sutherland, and Mr. Curtis.—Dr. Hutchison replied.—Mr. Curtis read a paper on a case of Congenital Parosteal Sarcoma which is published in full in our present issue at p. 1028.—Dr. Ashby and Mr. Sydney Stephenson communicated a paper upon Acute Amaurosis following Infantile Convulsions. They described a series of cases of the kind, which they believed to be due directly to severe convulsions. Thus the infants developed convulsions with coma resembling the status epilepticus of adults, and upon recovery were found to be blind and sometimes hemiplegic or aphasic. Ophthalmoscopic examination yielded negative results. There was no evidence of meningitis. Dr. Ashby and Mr. Stephenson distinguished this form of amaurosis sharply from the amaurosis (also without ophthalmoscopic signs) which might accompany or follow posterior basal meningitis in infants. They concluded: (1) that there was a form of post-eclamptic amaurosis, due to anæsthesia of the visual centres, occurring in infants; (2) that the convulsions, which might be due to various causes, were apt to be severe and accompanied by coma; (3) that the amaurosis might be associated with aphasia and paresis of hemiplegic distribution; and (4) that the amaurosis was for the most part transient.—Dr. Sansom suggested as cause for the blindness either a vaso-motor ischæmia or a poisoning of the nervous mechanism involved.—Dr. Hutchison alluded to amaurosis following superficial meningitis in infants.—Dr. George Carpenter mentioned in detail a case of a somewhat analogous nature occurring in an older child.—Dr. Ashby replied to the discussion.—Mr. A. H. Tubby described a case of Pneumococcal Arthritis in a male infant, aged 14 weeks. There was no history of accident or injury. On admission the child was evidently very ill. The right knee was bulbous, red, tender, and fluctuating. A quantity of pus was evacuated by means of two lateral incisions and a drainage-tube was passed through the joint. No signs of pneumonia could be discovered despite repeated examination of the chest. The pus from the joint was examined by Dr. W. S. Lazarus-Barlow who found that it contained the micrococcus pneumoniæ in pure culture. Mr. Tubby briefly reviewed the literature of the subject, incidentally mentioning two similar cases that had been under his care at the Evelina Hospital. In one of the latter there had been an antecedent pneumonia, but in the second case no pulmonary symptoms were found. Mr. Tubby remarked that these cases of pneumococcal arthritis threw some light on the pathology of the so-called "acute infective arthritis of infants."—Mr. J. P. Lockhart Mummery suggested dividing the patella in such cases and so nursing the baby as to facilitate the escape of pus from the affected joint.

ÆSCULAPIAN SOCIETY.—A meeting of this society was held on April 3rd, Dr. Thomas G. Stevens, the President, being in the chair.—Mr. E. W. Brewerton read a paper on the Bacteriology of Conjunctivitis which he illustrated by preparations of many organisms for the microscope. The results of examinations of over 100 cases were that the risk to the cornea of sloughing from infection by organisms was (1) streptococcus; (2) gonococcus; (3) staphylococcus; (4) diphtheria bacillus; (5) Koch-Weeks' bacillus; and (6) staphylococcus albus; that 50 per cent. of the cases of ophthalmia neonatorum were gonorrhœal; and that cases thought gonorrhœal which quickly recovered were pneumococcal. The table below is a synopsis of the mere finding of organisms:—

| | Times found in | | |
|---|---|---|---|
| | Purulent conjunctivitis. | Muco-purulent conjunctivitis. | Catarrhal conjunctivitis. |
| Gonococcus | 5 | — | — |
| Pneumococcus | 4 | — | — |
| Koch-Weeks' bacillus | 1 | — | — |
| Streptococcus pyogenes | 3 | — | — |
| Diphtheria bacillus | 2 | — | — |
| Staphylococcus albus | 2 | 9 | 8 |
| ,, aureus | 1 | 8 | 4 |
| ,, citreus | — | 4 | 1 |
| Hoffmann's bacillus | — | 2 | 3 |
| Xerosis | — | 4 | 6 |
| Bacillus coli communis | — | 1 | — |
| Diplococcus of Morax | — | 12 | 7 |
| Sarcina lutea | — | — | 3 |

Dr. B. G. Morison showed a radiogram of a Fracture of the Clavicle between the conoid and trapezoid ligaments due to a fall on the shoulder. There were no deformity and but slight displacement of the fragments.

THERAPEUTICAL SOCIETY.—A meeting of this society was held on March 31st, Mr. W. Parson, Master of the Apothecaries' Company, being in the chair.—The appointments of Dr. J Rose Bradford as Vice-President of the society and of Mr. E. Dennis Vinrace and Mr. W. Chattery as members of the council were confirmed and it

was resolved that an abstract of the papers read during the winter should be published.—Dr. Nestor Tirard read a paper on Some Dangers of Hypnotics which is published in full at p. 1022 of our present issue.—Dr. F. de Havilland Hall said that the great difficulty respecting hypnotics was that patients would not bear pain without them and insisted on their being administered so that sleep should be obtained at any price. A man lately came to his consulting-room with his nervous system very much deranged and smelling strongly of paraldehyde and he acknowledged that he had taken very large doses of this drug for a considerable time. The dangers of hypnotics might affect the prescriber himself. In one case a woman forged a physician's name to a prescription containing a very large amount of morphia and her life was only saved with great difficulty when she confessed the means by which she obtained the drug. Formerly, atropine was considered a physiological antidote to opium, but he thought it a dangerous one in some cases. Once when he had prescribed one-fortieth of a grain of atropine to be used hypodermically in a case of opium poisoning and afterwards recommended that only half the quantity should be used the attendant administered one-twentieth of a grain as being the half of one-fortieth. The patient succumbed.—Dr. Richard Paramore, Dr. Lee, Mr. Vinrace, and Dr. T. N. Kelynack also took part in the discussion.—Mr. Peyton T. B. Beale read a paper on a new Aseptic Film called velvril, a full account of which appeared in THE LANCET of Jan. 17th, 1903, p. 167.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 18th, Dr. W. B. Ransom being in the chair.—Mr. G. R. Anderson showed a young man from whom he had removed the Entire Diaphysis of the Tibia for acute Osteomyelitis of that bone; the patient now (a little more than one year after operation) had a sound limb, the tibia re-formed from the periosteum being somewhat thicker than in the other limb; no sinuses were left.—Dr. H. Handford then read a paper on the Importance of Etiology in Diseases of the Peripheral Nerves and Spinal Cord. Syphilis and alcohol were frequent factors in the causation of disease, but there were many others; they must look for (1) a constitutional or blood state, and (2) the exciting cause. Dr. Handford then read notes on the following cases: (1) the occurrence of a septicæmic polyneuritis following an injury to the hand; (2) a case of multiple neuritis; (3) a case of myelitis in a boy who had been stung in the calf of the leg; (4) disseminated sclerosis in a young woman following an attack of diphtheria—antitoxin had been used; (5) a disseminated sclerosis in a woman after influenza; (6) a case of peripheral neuritis resembling Landry's paralysis, death occurring 53 hours after onset (cause unknown); and (7) a case of peripheral neuritis in which death occurred in four and a half days.

# Reviews and Notices of Books.

*Practical Diagnosis; the Use of Symptoms and Physical Signs in the Diagnosis of Disease.* Fifth edition, revised and enlarged. By HOBART AMORY HARE, M.D., B.Sc., Professor of Therapeutics in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital. London: Henry Kimpton. 1902. Pp. 698. Price 21*s*.

THE author states in his preface that in preparing the fifth edition of this book he has rewritten a very large part of it and has endeavoured, by the addition of much new material and by the careful revision of the earlier text, to keep his work abreast of the advances in diagnostic technique. That he has succeeded in the object he had in view we believe every reader of this volume will admit.

In reviewing a fifth edition of a well-known text-book but few words of introduction are necessary. It is sufficient to say that the primary object of the book is to present the symptoms of a disease as they appear and from this group of symptoms to arrive at a diagnosis, thus following the methods which are ordinarily employed at the bedside. The present edition differs materially from its predecessors in the fact that its scope has been broadened to include not only the symptoms discussed as above mentioned, but also the physical signs and clinical tests which experience has proved to be trustworthy. These have been considered much more fully than before, with the result that the book has been rendered more complete. A large number of illustrations, most of them taken from actual cases, have also been introduced. In our reviews of previous editions of this work we have expressed the favourable opinion of its merits which we have formed after a perusal of its pages. The present edition is undoubtedly an improvement on its predecessors owing to the innovations to which we have just referred.

The earlier chapters of the book are concerned with details of physical examination, which, although they are to be found scattered through other medical text-books, are here gathered together in the manner most advantageous for study. Thus, the first three chapters describe the deductions that may be made from an examination of the face and head, the arms and hands, and the legs and feet. The various forms of paralysis affecting certain groups of muscles are discussed, as are also the spasms and tremors which occur in the face and extremities. The physical examination of the heart and lungs is most carefully considered. By a study of the pages devoted to this subject the student will derive knowledge which will be of the greatest assistance to him in the wards and out-patient rooms. The methods of percussion and auscultation and the conclusions to be derived therefrom are given and the large number of carefully prepared diagrams add greatly to the value of the verbal description. The chapter on the examination of the blood has been brought fully up to modern requirements. The methods which are detailed for the differentiation of the various forms of white blood-cells will be found simple to carry out and perfectly trustworthy.

Dr. Hare has wisely devoted a whole chapter to a consideration of the diagnostic indications afforded by the eye. He maintains that the eye offers more information for diagnostic purposes concerning the condition of other organs of the body than any single part which can be examined. Whilst some practitioners might consider this statement to be somewhat exaggerated, yet undoubtedly the fact that so many different tissues are found in this organ renders it susceptible to the many diseases affecting similar tissues elsewhere in the body. Systematic examination of the eye frequently yields information which clears up a doubtful diagnosis and a careful perusal of this chapter will repay the time spent upon it.

The second part of the volume is devoted to the Manifestation of Disease by Symptoms. Under this heading will be found chapters on Chills, Fever, and Subnormal Temperatures; Headache and Vertigo; Coma or Unconsciousness; Cough and Expectoration; Tendon Reflexes and Muscle Tone; and other symptoms which are prominent in various affections.

We cordially recommend Dr. Hare's work to practitioners and students. Abundant hints will be found in it which will be of value in actual practice.

*Essentials of Human Physiology for Medical Students.* By D. NOEL PATON, M.D., F.R.C.P. Edin., Lecturer on Physiology, School of Medicine of the Royal Colleges, Edinburgh. Edinburgh: William Green and Sons. 8vo, pp. 376.

IT is acknowledged on all hands that the time at the disposal of the ordinary student of medicine and surgery is insufficient to enable him to do more than to acquire a very limited knowledge of the science of physiology as it is represented by such works as the two large volumes of Schäfer's Text-book of Physiology which runs to 2000 pages, or Sir Michael Foster's Human Physiology in five volumes. There is consequently a constant demand for text-books presenting in a compendious form the

chief facts that must guide the future practitioner in his profession and at the same time incorporating recent advances that extend or modify views and statements or doctrines previously held. In such works the subjects dwelt upon must depend on the author's opinion of what will prove most useful to the student in his after career and this information will at least constitute a solid basis on which more extended knowledge may be founded later.

In Dr. Noel Paton's work the space devoted to the consideration of the chief functions of the body is very fairly proportioned, the only exception being that of reproduction which though dignified by the title of Part III. of the treatise only occupies four pages, the scantiness of the account being due, not to any wish on the part of the author to regard it as unimportant, but because the various problems associated with that function are supposed to have been already studied by the student in connexion with biology, whilst Dr. Paton considers that the structure of the organs of reproduction must be studied practically. On the same grounds the structure of the various tissues of the heart and of the eye might have been omitted. Considerable space is gained by omitting all descriptions of apparatus, in which Dr. Paton exercises a wise discretion, since little can be learned from an account of such an instrument, for example, as Du Bois Reymond's inductorium, whilst its construction is easily mastered by the intelligent student by five minutes' examination of it. The language in which the several functions are described is almost invariably thoroughly correct, clear, and intelligible, and we have only marked a few passages to which exception might be taken. In one of these the author is describing the movements of the heart (p. 194) and states that "since the apex is twisted to the left the movement of the ventricle is not simply directly forward but also from left to right. This tilting of the apex from left to right is further favoured by the direction of the muscular fibres," statements that are not quite compatible with each other. Again, in speaking of the pulse he remarks that in some cases the expansion of the vessel "may be felt by simply laying the finger on the surface of the artery without exerting pressure." Surely in view of the exceedingly small transverse enlargement of even large arteries, as compared with their longitudinal increase, this must be very exceptional; at all events it is very difficult to feel the pulse in an artery resting amongst soft tissues even when some pressure is made, as everyone who has searched for a wounded vessel knows.

Dr. Paton accepts the sudden tension of the semilunar valves as the efficient cause of the second sound of the heart and in regard to the first sound holds that in addition to the valvular tension contraction of the muscular walls of the heart plays an important part in its production as it can be heard after removal of the heart from the body. The reason which he assigns for its being heard strikes us as unusual. It is due, he says, apparently to the wave of contraction passing along the muscular fibres of the heart exciting or producing vibrations and when these are conducted to the ear the external meatus picks out the vibration corresponding to its fundamental note and thus produces the characters of the sound.

A few pages further on Dr. Paton, in discussing cardiac murmurs, remarks that when any marked alterations in the lumen of a tube occurs—either a sudden narrowing or a sudden expansion—the flow of fluid becomes vibratory and sets up vibrations in the solid tissues. Expansion of a vessel no doubt causes a murmur when traversed by a current by reason of the back eddies in the expanded part, but we believe no sound results from a uniform contraction. On the following page (p. 205), by misplacement of decimal points it would appear that the whole daily work of the labourer is 185·60 kilogrammeters which even the most indolent of "ca'canny" men would repudiate. Why does Dr. Paton persist, both in the text and in the index, in spelling colostrum "cholostrum"? But these are very minor and venial faults. As a whole the book is very satisfactory in the order in which the facts are marshalled. Though the "Essentials of Physiology" is not a large treatise the student must not regard it as a work that can be read cursorily. It is a highly condensed account of the present aspect of physiology written by a very competent teacher and will demand, if the reader intends to master its contents, very careful and frequently repeated perusal.

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*Die Lehre von den Geschwülsten mit einem Mikroskopischen Atlas.* 63 Tafeln, mit 296 Farbigen Abbildungen. (*The Theory of Growths, with a Histological Atlas.* 63 plates, with 296 coloured drawings.) Von Dr. MAX BORST, Privat docent und I. Assistant an dem Pathologischen Institut der Universität, Würzburg. In two vols. Wiesbaden: J. F. Bergmann. Glasgow: F. Bauermeister. 1902. Royal 8vo, pp. 998. Price 50*s.*

DR. MAX BORST is to be much congratulated on the production of a work of such magnitude and importance, and we have little hesitation in prophesying that this exhaustive treatise on growths is destined to occupy a high position in the literature of pathology. Dr. Borst has evidently made the fullest possible use of the material at his disposal as assistant at the Pathological Institute of the University of Würzburg and the work is replete with his own pathological researches. In the whole range of the subject there is hardly a point raised on which he is not able to speak with authority, supported by his own personal experience and careful research. In addition to a full exposition of the author's own work the book contains copious references to all the most important contributions to pathological literature of the past few years, so that it forms a comprehensive chronicle of present knowledge on the subject. Although not definitely so stated it is essentially a book for the pathologist and the clinician would derive little satisfaction from its perusal.

At a time when everyone is straining after a sign to indicate clearly the path which may lead to the *prima causa* of malignant tumours, the reader naturally turns with interest and expectancy to that part of the work which deals with the etiology of growths. Dr. Borst is led to adopt a modified Cohnheim theory for the origin of all tumours, and in this way he brings benign and malignant tumours into the same category from an etiological standpoint. The author's view is fairly well summed up in the following: "I am of opinion, therefore, that the appearance of carcinoma and, in fact, of all true growths is dependent upon local developmental disturbances. These may take the form of grosser embryonic remnants (Keimverlagerungen), local malformations, and such like, or it may happen at certain points of an organ or system that while the epithelium and connective tissue cells are arranged quite normally in relation to one another the idiopathic qualities of the one or the other have acquired deviations from the normal in consequence of errors in the process of differentiation. There arise in consequence areas of tissue in which no change of a grosser nature is discernible and which in an ordinary physiological state behave normally in every way, but when they become subject to pathological conditions of the most varied nature the abnormal qualities, which have been hitherto latent, make themselves forcibly evident."

After devoting the first part of the work to general considerations as to the morphology, etiology, growth, and extension of tumours, the author proceeds to deal with the individual types. Throughout the treatise he is at considerable pains to draw a definite line between true growths and inflammatory tumours, hypertrophies, and

the like. Among the tumours of connective tissue origin he classes the endotheliomata, a group of tumours about which little is heard in English text-books and which have been constantly confounded with sarcomatous and carcinomatous growths. The author divides them into lymphangio-endotheliomata, hæmangio-endotheliomata, and peritheliomata, and endeavours to define them as a separate class of tumours possessing certain definite characteristics and taking their origin from the endothelium and perithelium of blood-vessels, lymphatics, and serous membranes.

We may also refer to the last part of the work devoted to mixed tumours as one of special interest. In regard to their origin, Dr. Borst largely follows Wilms and holds with him that many arise from undifferentiated embryonic remnants which later in the process of growth develop tissues of the most varied form.

The histological atlas calls for the highest praise. The drawings are almost entirely taken from the author's own preparations and are beautifully coloured.

The whole work is to be highly commended both for the valuable matter which it contains and for the thoroughness and painstaking care with which it has been put together.

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*Anatomy and Histology of the Mouth and Teeth.* By J. NORMAN BROOMELL. Second edition, revised and enlarged. With 337 illustrations. London: Rebman, Limited. 1902. Pp. 500. Price 21*s.* net.

THIS is one of the most useful works yet published on the anatomy of the teeth. The opening pages of the book are devoted to a general account of the anatomy of the mouth and this is followed by a chapter containing an excellent description of the maxilla and the mandible. The author holds the view that the palatal rugæ, the bones, and the teeth themselves are strongly indicative of the character of the individual. He divides temperaments into four varieties—bilious, nervous, sanguineous, and lymphatic—and he describes under these headings distinct types of teeth and jaws. For examples we read that the "arch formed by the hard palate is in the sanguineous temperament almost a perfect oval"; in the bilious it is "high and flat, extending from the base of one alveolar process to another, from which point it descends abruptly to the necks of the teeth"; in the nervous the roof is "semi-elliptical or parabolic in shape"; and in the lymphatic it is "low and segmental in form." Again, in speaking of the curve of the dental arch the author describes and figures shapes which he considers to be characteristic of the different temperaments.

The feature of the work, in our opinion, is the excellent description given of the individual teeth. There are illustrations of the maxillary teeth at different periods of their development, but for some unexplained reason the author omits a similar group of illustrations of the mandibular teeth. The superficial anatomy of each tooth is minutely described and reproductions of photographs are given of the different surfaces. In the section on the Development of the Teeth the author has been equally generous with illustrations of dissections by himself. Some of the dissections he has made by removing the tooth sacs and oral membrane from the bones, while in others he has removed the calcified caps from the dentine papillæ so as to show the amount of calcification that has taken place

A chapter on the Embryology of the Mouth has been added and in this the author has included several reproductions of photo-micrographs showing Meckel's cartilage. In one the relations existing between the two halves of Meckel's cartilage and the growing mandible at the median line are well shown, the figure illustrating how little the development of the bone is dependent upon the cartilage. Another innovation is a chapter on Anomalies of the Teeth; it is, however, far from complete and could be omitted with advantage.

# Analytical Records
FROM
# THE LANCET LABORATORY.

### (1) SANATOGEN; AND (2) LAXATINE.
(BAUER CIE., BERLIN. LONDON AGENCY: F. WILLIAMS AND CO., 83, UPPER THAMES-STREET, E.C.)

1. THE composition of sanatogen is simple: it is a combination of milk proteid with glycero-phosphoric acid. Excluding moisture, which amounts to 8·4 per cent., sanatogen contains about 95 per cent. of casein and 5 per cent. of glycero-phosphoric acid. The compound, of course, possesses nutritious qualities, while glycero-phosphoric acid is known to have a favourable influence upon the processes of nutrition and on this account is employed with some success in neurasthenia. 2. Laxatine is a mixture of carbonate of magnesium and castor oil which is suggested as an improvement upon the ordinary oil in that it is more easily taken, being less repulsive as regards taste and appearance. The suggestion is decidedly ingenious. Our analysis confirms the printed description of the preparation. We found it to contain approximately equal weights of castor oil and carbonate of magnesium.

### TANOCOL.
(ACTEIN-GESELLSCHAFT FÜR ANILIN-FABRIKATION, BERLIN. LONDON AGENCY: CHARLES ZIMMERMANN AND CO., 9 AND 10, ST. MARY-AT-HILL, E.C.)

Tanocol is a light brown powder which is suggested as a suitable intestinal astringent and already some interesting observations have been made with regard to its employment in the treatment of certain forms of intestinal catarrh. It is hardly affected by weak acids, so that it escapes the action of the gastric juice. On the other hand, it readily decomposes in alkaline fluids, yielding up its tannin. In a word, tanocol is a compound of gelatin and tannin.

### PALMER'S HEALTH FLOUR.
(E. J. C. PALMER, COUNTY MILL, GLOUCESTER.)

This flour contains a small proportion of well-known ingredients which on moistening interact with effervescence, so that the flour belongs to that description known as "self-raising." From the excellent proportion of proteid and mineral salts present it may be fairly concluded that the flour is of fine quality. No objection can be taken to the effervescent ingredients employed, as from our examination they are evidently of the purest kind.

### IRISH WHISKY.
(H. S. PERSSE, LIMITED, GALWAY, IRELAND, AND 1, NEW LONDON-STREET, LONDON, E.C.)

The results of our analysis of two specimens of whiskies, one seven years old and the other ten years old, are in perfect accord with the description that they are genuine malt whiskies and unmixed with other spirit. Moreover, the relative ages are also indicated by the figures obtained in regard to secondary products which are given below. The sample seven years old yielded the following results: alcohol, by weight 38·78 per cent., by volume 46·02 per cent., equal to proof spirit 80·64 per cent.; and extractives, 0·12 per cent. The figures in regard to secondary products were as follows, given in grammes per hectolitre of absolute alcohol present: acidity (as acetic acid), 41·76; aldehydes, 11·22; furfural, 3·40; ethers (as ethyl acetate), 20·91; and higher alcohols, 204·00. These figures are typical of a genuine Irish and pure malt whisky. The flavour was that of a matured spirit. The ten-year old sample gave the following results on analysis: alcohol, by weight 38·78 per cent., by volume 46·02 per cent., equal to proof spirit 80·64 per cent.; and extractives, 0·10 per cent. The figures in regard to secondary products given in grammes per hectolitre of absolute alcohol present were as follows: acidity (as acetic acid), 51·90; aldehyde, 14·41; furfural, 3·46; ethers (as ethyl acetate), 30·44; and

higher alcohols, 259·50. It will be seen that the oxidation products have increased in amount in this sample compared with the previous one, a result which is consistent with its greater age. To the palate this whisky was satisfactory, the flavour being characteristic of a mellow and genuine all-malt spirit. The quality like the previous sample was excellent.

FRADA BEVERAGES.

(THE BRITISH FRADA CO., 59, MARK-LANE, LONDON, E.C.)

These beverages contain no alcohol but in other respects present the composition of cider and lager beer respectively. Apple frada, for example, gave the following results on analysis: extractives, 7·17 per cent.; mineral matter, 0·2 per cent.; malic acid, 0·29 per cent.; and acidity reckoned as acetic acid, 0·054 per cent. We have no doubt that apple frada is the genuine juice of the apple. It affords a pleasant and refreshing beverage and has the same effervescent properties as cider, yet is without alcohol. The absence of any appreciable amount of volatile acidity shows a sound condition. The lager beer gave the following results on analysis: extractives, 9·19 per cent.; mineral matter, 0·25 per cent.; and total acidity, in terms of lactic acid, 0·117 per cent. This beverage has a full malty flavour. It is lager beer without alcohol. It is stated to have been prepared from well-fermented pure beer. Both preparations have been sterilised and we could not find any evidence of the presence of added preservatives. We consider these beverages to be of some merit.

PRESERVED SALMON IN PORCELAIN-LINED TINS (JUDGE BRAND).

(W. & D. HARVEST, DOWGATE-DOCK, UPPER THAMES-STREET, LONDON, E.C.)

There is always the possibility of tinned foods becoming contaminated with the metal either of the tin or of the soldering. A method, therefore, by which the food is placed in a porcelain container must be regarded as a decided advance on the old tinning process. We have examined samples of salmon preserved in this way and we have found them in good condition, even when tinned seven years ago, while there was no evidence of metallic contamination. The fish is not in contact with the tin and there was no "blueing" of the metal on this account.

STERILISED MILK.

(CARL PETERSSON, MALMO, SWEDEN. LONDON AGENCY: C. A. & H. NICHOLS, PENINSULAR HOUSE, MONUMENT-STREET, E.C.)

This milk is sterilised by what the vendors call "the Buddeizing process," after the name of the inventor of the process, Mr. W. C. Budde of Copenhagen. The process is remarkable for its simplicity and consists in treating the milk with peroxide of hydrogen. We found on removing the stopper of the bottle that there was a slight pressure within which proved to be due to oxygen gas. The milk was perfectly sweet and kept so for several days. Moreover, the milk in an unopened bottle kept at the temperature of incubation showed no signs of undesirable change. The milk is without the "scalded" flavour of milk sterilised by heat. According to our analysis the milk is of good average quality. The results were as follows: total solids, 11·82 per cent.; fat, 3·32 per cent.; and mineral matter, 0·70 per cent.

LACUMEN.

(PRIDEAUX'S PURE CASEIN AND LIFE FOOD CO., LIMITED, MOTCOMBE, DORSET.)

This preparation represents the solid parts of milk, with, however, only a residue of fat. Our analysis gave the following results: moisture, 4·80 per cent.; mineral matter, 8·60 per cent.; fat, 1·05 per cent.; proteid, 36·30 per cent.; and milk sugar 49·25 per cent. The composition of the mineral matter was normal, containing the whole of the phosphates of milk and the alkaline salts. The powder thus represents milk without water and its fat. As a matter of fact, however, a trace of fat was present. A remarkable feature of the preparation is that it is almost entirely soluble in water. Certainly hot water readily takes up the proteids, the fluid being opalescent and having all the appearance of fresh milk. Lacumen, it is stated, can be supplied wholesale at 56*s.* per hundredweight. This result seems to us to be of some importance in connexion with the supply of a cheap and at the same time portable and valuable food. The preparation of course contains all classes of material concerned in making good the waste of the body, and may therefore be used with advantage for increasing the nutritive value of other foods.

ANTISEPTOFORM.

(CORBYN, STACEY AND CO., LIMITED, 300, HIGH HOLBORN, LONDON, W.C.)

According to our analysis antiseptoform is a soap jelly containing spirit and formaldehyde. On applying a light to the jelly in the tin in which it is contained the preparation burns with a blue flame and amongst the products of combustion the vapour of formaldehyde can readily be detected. The method seems to be a simple and effectual one for the disinfection of rooms. Bacteriological experiment has established its germicidal effect.

## LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY.

THE annual general meeting of the London and Counties Medical Protection Society was held on April 2nd, Dr. G. A. HERON being in the chair.

Dr. HERON, in moving the adoption of the report and balance-sheet, said that 1902 had been a very good year for the society. They had had more business, more members, and had increased their financial stability. The members of the society now numbered 2300 and 37 of these were dentists. He had no doubt that when the dental practitioners apprehended clearly that the society was open to them there would be a considerable accession of members from men who were practising dentistry. A good deal of trouble had been caused to certain members by proceedings under the Workmen's Compensation Act. When a workman received his compensation the medical man not unnaturally asked for his fees, but was referred by the workman to his employer, but the employer when applied to referred him back to the workman. He (Dr. Heron) thought the way out of the difficulty was for the medical man carefully to note by whom he was asked to attend the injured person under the Workmen's Compensation Act. If the employers sent for him he believed they were responsible; if the workman or the workman's representatives sent then the workman was responsible. If that precaution were taken by the medical man it would save a great deal of trouble. It had been said that the society was saving too much money and that it ought to spend its savings on the prosecution of quacks. He thought that would be a wild-goose chase, because unfortunately the quacks were too well protected by the law of the land. The general prosecution of quacks was a course of action the council strongly objected to in the present circumstances of the law. The surplus funds of the society at the beginning of 1903 amounted to £2161 18*s.* 2*d.* and showed an increase during the last year of £367 15*s.* 11*d.*

Mr. W. A. DAVIDSON, in seconding the motion, said that they ought to have some organisation for the purpose of securing payment of fees in cases under the Workmen's Compensation Act.

Mr. J. V. C. DENNING having addressed the meeting,

Dr. J. P. HENRY pointed out the advisability of securing an alteration in the Medical Acts for the purpose of prosecuting quacks.

Mr. F. GREAVES having remarked that the last speaker had not probably tried what he had suggested,

Dr. HERON said that in regard to the Workmen's Compensation Act it would be a good plan for the medical men of a district to go to employers of labour and to point out the difficulties of the case. If a general understanding were arrived at before the accidents happened then the difficulties of the case would in many instances be met.

The motion was then formally put from the chair and carried unanimously.

The proceedings, after the election of the council and the officers of the society, closed with a vote of thanks to the chairman.

# THE LANCET.

*LONDON: SATURDAY, APRIL 11, 1903.*


## Death Certification.

ON March 17th in the House of Commons Sir WALTER FOSTER asked the President of the Local Government Board whether his attention had been directed to the recent report of a departmental committee appointed by the Home Secretary on the Cremation Act of 1902, and to the views expressed by that committee as to the defects of the present system of death certification; he further asked whether the President would introduce a Bill during the present session to give effect to the recommendations of the select committee of 1893 on that subject. Mr. LONG replied that he was aware of the report of the departmental committee referred to and that the recommendations of the Select Committee on Death Certification had been under his consideration, but he was afraid he could not see any prospect of being able to introduce a Bill on the subject during the present session.

The select committee above referred to, which was presided over by Sir WALTER FOSTER, was appointed to inquire into the sufficiency of the existing law as to the disposal of the dead for securing an accurate record of the causes of death in all cases and especially for detecting them where death may have been due to poison, violence, or criminal neglect. As the report was presented ten years ago we have thought well to refresh our memory by referring to that document. From the evidence taken by the committee in 1893, and from the committee's report upon it, we learn that even as regards certified deaths the provisions in vogue for securing a record of the true causes of death and the detection of crime in suspicious cases left much to be desired. According to the evidence of an experienced witness a practice existed of occasionally giving death certificates on forms in which all mention of attendance was omitted, the object being to enable the practitioner to give death certificates in cases which he had never attended in life. Another witness informed the committee that he "saw no difficulty for anybody to perpetrate a crime, get the whole matter certified and registered, and the body buried without anybody detecting it." The committee stated that among the class of certified deaths were to be found many deaths attended by unqualified assistants and certified by qualified practitioners who may never have seen the cases; deaths certified by medical practitioners who had not seen the patient for months prior to death and who only knew by hearsay of death having occurred. Such instances were at that time numerous, but, in addition, the committee continued, evidence has been given as to cases accidentally brought to light of deaths registered, with a view to insurance or other frauds, of persons afterwards discovered in some cases to have been murdered and in other cases to be still alive. Imperfect, however, as the present provisions may be, it was important to note the effect which even the loose system of medical and official certification had as a deterrent of crime. To appreciate this fully it was necessary to contrast this class with that of uncertified deaths, when the result was such as to force upon the committee the conviction that vastly more deaths occurred annually from foul play and criminal neglect than the law recognises.

After carefully reviewing the evidence, which fills 300 pages of a folio blue-book, the committee made a series of most important recommendations to which we shall revert presently. The report of the departmental committee of the Home Office on crematoriums, to which we devoted an article in THE LANCET of March 7th (p. 673), although dated ten years later than the report of the Select Committee on Death Certification, seems to us to recognise the persistence at the present day of the same scandalous state of the law concerning the disposal of human remains as that which obtained in 1893. Thus in its report just issued the committee says: "While we believe that there is no ground whatever for the idea that under the present system secret murders by poison are common it is impossible to attribute the infrequency of this class of crimes to any complete or efficient safeguards afforded by the possibility of exhumation." "In some cases," the report proceeds, "we found that bodies of murdered persons were buried without any certificate of the cause of death. *The law, unfortunately, permits burial without certification of the cause of death.* Unless, therefore, some definite ground for suspicion arises there is no investigation of those cases where the cause of death is obscure and where the ambiguity of the symptoms can be slurred over *in a certificate which it is no one's business to criticise.*" (The italics are ours.)

It is therefore abundantly clear that with respect to the whole question of the disposal of the dead and the certification of the cause of death the law at the present day, not less than it was in 1893, is seriously in need of amendment.

The following is a summary of the principal recommendations of Sir WALTER FOSTER'S Committee on Death Certification: (*a*) That in no case should a death be registered without the production of a certificate of the cause of death signed by a registered medical practitioner or by a coroner after inquest. (*b*) That in each sanitary district a medical certifier of the cause of death should be appointed to act in cases where a certificate from a medical practitioner in attendance is not forthcoming. (*c*) That a medical practitioner in attendance should be required, before giving a certificate of death, personally to inspect the body. (*d*) That medical practitioners should be required to send certificates of death (on a prescribed form) directly to the registrar, instead of handing them to the representatives of the deceased, as at present. (*e*) That the practice of burial in pits or common graves should be discontinued. (*f*) That stillbirths which have reached the stage of development of seven months should be registered only upon the certificate of a registered medical practitioner, and that it should not be permitted to bury or otherwise to dispose of the

stillbirth until an order for burial had been issued by the registrar.

With respect to these recommendations we may remark that they appear to us to be comprehensive and reasonable and that their adoption in statutory form would secure a much-needed reform in the existing system of disposal of the dead as well as in the national system of the registration of disease. And, further, we regard it as in the last degree unfortunate that the state of public business should deter the President of the Local Government Board from taking immediate steps to redress an evil which is a standing menace to the public health and safety.

## The Anatomy and the Pathology of the Vermiform Appendix.

THE vermiform appendix of the caput cæcum coli (to give it its full title) continues to attract an amount of attention to which neither its size nor its physiological importance would appear at first sight to entitle it. It might well be thought that the functions of so small and so useless an organ had been by this time fully investigated and that there was nothing new to learn even about its pathology. It is true that little more than two or three decades ago the text-books of medicine frequently discussed the morbid conditions of the appendix in a few lines or omitted to notice them altogether, and therefore something had to be done to make up for this former neglect; but so much has been said and so much has been written on the subject that it may well be asked what new fact or theory can there be with regard to the appendix. A perusal of the Hunterian Lectures[1] recently delivered at the Royal College of Surgeons of England by Mr. W. MCADAM ECCLES will speedily set at rest any doubts that the reader may have had as to whether there is anything new to be said on the subject, for the lectures teem with new facts or new aspects of old facts, and help to clear up many obscurities connected with the appendix.

The mere fact that this organ is a "remnant" in itself suggests the probability of its possessing importance in disease; for it may fairly be laid down with but few exceptions that disused organs are extremely liable to become the seat both of inflammations and of new growths; though there are several other factors which assist in giving to the appendix pathological importance. Perhaps the most important of all is the fact that it is really an intra-peritoneal organ. From base to apex it is completely invested in peritoneum; therefore any inflammations spreading from the appendix cannot fail to affect the peritoneum and any perforation of its wall must lead to extravasation into the peritoneal cavity, though, perchance, the portion of the peritoneal cavity involved may have become shut off by adhesions from the remainder. Its complete serous investment also must serve to demonstrate the impossibility of any "extra-peritoneal" operation for reaching the appendix. Another point of no small importance is the minuteness of the aperture by which it communicates with the cæcum; this opening, moreover, is overlapped by folds of the mucous membrane, so that it must be very difficult for a foreign body to make its way into the interior of the appendix. Surgeons have long ago given up the intruding foreign body as a frequent source of appendicitis, but it is an enticing theory and it will long linger in the popular mind as the true *fons et origo mali*, while occasional cases occur to show that it is a beginning of mischief which cannot be wholly disregarded. It is now almost universally agreed that any inflammation of the appendix sufficient to excite symptoms must be bacterial in origin and Mr. ECCLES is most definite on this point. In addition to the ordinary bacteria of suppuration many other micro-organisms have been shown to be present; for instance, the diplococcus pneumoniæ, the tubercle bacillus, and the actinomyces. As to the function of the appendix, Mr. ECCLES has pointed out that most of the theories on the subject are untenable. It has been suggested that its function was the production of sulphuretted hydrogen for the purpose of assisting in rendering aseptic the contents of the large intestine. The suggestion is ingenious, but *a priori* we should have expected the human body to furnish a more satisfactory disinfectant than sulphuretted hydrogen. In the vegetable world the main antiseptics evolved are the essential oils, most of which are extremely pleasant in odour. The mucous membrane of the appendix has also been looked upon as an absorbent surface, but its extent is very minute, and, further, by distension of the cæcum with liquid it is practically impossible to dilate the appendix; this fact shows that a current of alimentary material into the appendix from the cæcum is very unlikely and therefore in all probability its absorbing power is unimportant. Practically all we know of the function of the appendix is that it secretes mucus; the rest is theoretical.

The risks of appendicitis are beginning to be calculated with accuracy now that the literature of the subject is becoming large. Great stress must be laid on the danger of appendicitis in connexion with pregnancy; it may be held that a woman who has suffered from an attack of appendicitis and has not had the appendix excised runs an enormous risk if she becomes pregnant. With regard to life insurance, Mr. ECCLES thinks that far too little attention is paid to previous attacks of appendicitis by the medical officers to life assurance companies. Against loss by death from a primary attack no insurance company can be protected, but any history of previous attacks should be inquired for. If, however, the appendix has been removed and six months have elapsed since the operation ordinary rates only should be charged. New growths of the appendix are very rare, and in this respect the appendix does not conform to its character as a "remnant." But the malignant growths are of more frequent occurrence than innocent tumours. Carcinomata are occasionally primary, but in the majority of cases the appendix is involved by extension from a neighbouring organ. Mr. ECCLES has succeeded in collecting 14 instances of undoubted primary carcinoma and three of primary sarcoma. The occurrence of the appendix in a hernial sac was also discussed and the lecturer pointed out the great frequency of the presence of adhesions in connexion with a herniated appendix, and

[1] See THE LANCET, March 14th (p. 703) and 21st (p. 779), 1903.

with a description of appendicitis in a hernial sac these Hunterian Lectures concluded. The lectures form a solid contribution of no mean value to our knowledge of the appendix vermiformis.

## A New Theory of Internal Secretion.

IN the *Philadelphia Medical Journal* of March 7th Dr. C. E. DE M. SAJOUS, in a paper entitled "The Ductless Glands as Organs of the First Importance in Vital Functions and their Relationship as such to Disease and Therapeutics," propounds a series of statements of the most strikingly heterodox character; in fact, nothing less than a new theory of vital processes and the disturbing actions of toxins, poisons, and disease. Briefly outlined the theory is that "the thyroid gland, the anterior pituitary body, and the adrenals are functionally interdependent and constitute a system, the 'adrenal system,' which has for its purpose to sustain physiological oxidation and the metabolic activity of all tissues. The physiological function of the internal secretion of the adrenals is loosely to combine with the atmospheric oxygen in the lungs and to endow the blood plasma with its oxidising properties." The essential oxygen carrier Dr. SAJOUS regards therefore as the plasma and the hypothetical compound of the oxygen and the adrenal secretion he names "adrenoxin," while the red corpuscles with their hæmoglobin are supposed to play a subsidiary and secondary rôle as oxygen carriers, the nature of which is not made clear. The part played by the pituitary body is stated in the following terms. "The anterior pituitary body governs the functional activity of the adrenals and is directly connected with these organs through the cervico-thoracic ganglia, the splanchnic nerves, and the semilunar ganglia of the sympathetic system." The part played by the thyroid gland in this physiological triad is less obviously elucidated; it seems to be its function to produce iodine compounds which act by exciting the pituitary body and the adrenals to increased activity. In other words, its internal secretion is "nature's own stimulant" and the therapeutic uses of other iodine compounds are to be explained in like manner.

The red corpuscles, as we have seen, are relegated to a secondary position in the physiological economics of the body as "mere storage cells for a load of adrenoxin," but it is far otherwise with the leucocytes. The intracellular and intranuclear networks of mature leucocytes are regarded as made up not of mere protoplasmic threads but as consisting of "minute channels or canaliculi for blood plasma and granules" and the function of the leucocytes as being to gather proteids, fats, and carbohydrates from the alimentary tract and to convert them into the final products necessary for the various organs to which they are carried; in fact, the leucocytes and the cells of the adrenals seem to leave very little for the remaining cellular elements of the body to carry out. Dr. SAJOUS summarises his views of the chief properties of the various kinds of leucocytes as follows: the neutrophiles ingest proteids, sugar and starch, in the digestive canal, convert them into peptone, myosinogen, and fibrinogen granules, each subsequently combining with adrenoxin, the peptone to sustain "general metabolism," the myosinogen "to supply contractile energy to muscles, and fibrinogen to supply heat energy to the blood." The eosinophiles form hæmoglobin from proteids, bilirubin, and iron; the basophiles form myelin, "the active principle of which, lecithin, combines with adrenoxin to develop nervous energy." Having convinced himself of the rôle of the secretion of the adrenals in health Dr. SAJOUS then proceeds to infer that all general symptoms witnessed in disorders due to any toxic agency such as toxins, toxalbumins, and poisons are manifestations of overactivity, insufficiency, or inactivity of the adrenals. In support of this view he works out in tabular form a supposed correspondence between the symptoms and course of Asiatic cholera and of poisoning by tartar emetic, arsenic, and ptomaines with the results of the removal of both adrenals. In like manner the action of most drugs is to be explained in that they either excite or depress the adrenal function, and the cumulative action of such a drug as digitalis is due, we are asked to believe, to suddenly induced adrenal insufficiency. Moreover, exophthalmic goitre is due to adrenal overaction and myxœdema to defective adrenal action, in the former case resulting from over-stimulation by thyro-iodine compounds and in the latter case from their deficiency. As a subsidiary mechanism in this relation the spleen and pancreas are supposed to possess a combined action, forming an internal secretion which proves to be nothing less than trypsin, the function of which is to continue in the blood stream the cleavage processes begun in the intestinal canal and to protect the organism from the effects of bacteria, their toxins, and other poisons. In discussing the pancreas Dr. SAJOUS maintains a discreet silence as to its rôle in carbohydrate metabolism as shown by VON MERING and MINKOWSKI. The posterior part of the pituitary body is also concerned, to quote Dr. SAJOUS again (the italics are his): "Far from being the insignificant vestigial organ it is generally supposed to be, it proved to be the *chief functional centre of the nervous system.*" This extraordinary statement is insufficiently explained but appears to mean that the posterior pituitary body controls the medullary or bulbar centres, especially the vaso-motor centres. When this theory is applied to the study of disease no less startling results are obtained. In pulmonary tuberculosis, for instance, "the organ primarily at fault is the anterior pituitary body. Vulnerability to any disease, whether congenital or acquired, means insufficiency of this organ—that is to say, of the adrenal system." As a result, the spleno-pancreatic activity is depressed and the trypsin does not effectually digest infective agents and pulmonary infection can occur *viâ* the alimentary canal, since the leucocytes can then carry undigested bacilli. Here, by the way, Dr. SAJOUS seems conveniently to neglect the generalisation of tubercle as a result of blood infection. Pneumonia, on the other hand, is due to adrenal overactivity and the rusty sputum has the same significance as the hæmorrhages caused in animals by toxic doses of adrenal extract.

We have quoted enough of Dr. SAJOUS'S statements to

show the general purport of his views. In a letter to the editor of the *Philadelphia Medical Journal* he would disarm criticism by explaining that the data given in the paper are in no way intended to portray the evidence submitted in support of his conclusions—that, in fact, he has condensed into less than four pages an outline of evidence which in his larger work occupies over 350, but so startling a theory seems almost to demand comment, even if detailed criticism is needless. It is difficult not to admire the ingenuity of the speculations, but they seem irresistibly to recall the hypothesis of mediæval observers with their untrammelled imaginations. We think that Dr. SAJOUS will hardly make any converts to his mystical theory, yet in the same issue of the *Philadelphia Medical Journal* is a record by Dr. EUGENE WASDIN of Buffalo of a fatal case of fracture of the base of the skull involving the body of the sphenoid with subsequent gangrene of the pituitary body associated with intense jaundice and marked disintegrative blood changes which he interprets in the light of Dr. SAJOUS's views.

# Annotations.

"Ne quid nimis."

## VOLUNTARY *v.* RATE-SUPPORTED HOSPITALS IN THE METROPOLIS.

IN the *Times* of April 7th appears an important article from the pen of Mr. J. G. Craggs, M.V.O., dealing with the question as to whether the metropolitan hospitals shall continue to be supported by the offerings of the charitable or shall be thrown upon the rates. Mr. Craggs speaks as one having authority, for he has been for some time one of the honorary secretaries to King Edward's Hospital Fund for London. His thesis is briefly as follows. The London hospitals, owing to the care which they take for the medical and surgical treatment of the sick poor, for the advancement of medical science, and for the education of medical practitioners, are an essential part of the mechanism of civilisation: therefore, if they should fail to receive adequate maintenance from charity it would become necessary for the State to support them. At present the hospitals of the metropolis do not receive money enough to carry on their work in the most effective manner. Expenses are yearly increasing and there is not a corresponding increase in the offerings of the charitable. If the London hospitals eventually have to be thrown upon the rates Mr. Craggs calculates that the ratepayer would have to pay for hospitals alone a rate of at least 14*d.* in the pound. He bases his figures upon an inquiry into the published accounts of the voluntary hospitals on the one hand and of those of the Poor-law infirmaries and the institutions under the control of the Metropolitan Asylums Board on the other. Mr. Craggs therefore adjures the great corporate bodies such as limited liability companies, banks, insurance companies, and railway companies to subscribe much more liberally than they do at present to the metropolitan hospitals as a form of insurance against a great increase in their rates. No one, we think, will quarrel with the general trend of Mr. Craggs's argument, but in one point it is not quite fair to compare institutions controlled by the Metropolitan Asylums Board with an ordinary general hospital. The general hospital has always a certain amount of work to do. Its task is always greater than it can perform, but variations in the magnitude of the task are not usually significant. The Metropolitan Asylums Board has to deal with epidemics. The Board has to keep up practically the same staff during a time of no epidemic and during an epidemic. Even after five years of conscientious objection, as the law euphemistically calls pig-headed ignorance, we do not perpetually suffer from a small-pox epidemic, but whether the disease be present or not the Asylums Board has to keep its hospitals, its staff, and its organisation in readiness. This accounts for the expenditure of the Metropolitan Asylums Board to which Mr. Craggs calls attention. We do not suggest that the Board is economical, but it must be remembered that it is obliged to keep up heavy expenses and that retrenchment in its case might mean enormous disaster to the public. To come to the general question of throwing the hospitals—whether of London or elsewhere—upon the rates, our opinion is well known to our readers. We should view such a so-called reform as a disaster. We have dealt with the question *seriatim* on more than one occasion and we may shortly recapitulate our arguments. Were the hospitals to be rate-supported they would no longer be self-governing bodies. They would be governed by a State department aided by local municipal wisdom. In that case restrictions might be placed through well-meaning ignorance upon scientific advance. At present hospitals are abused by many who could perfectly afford to pay a practitioner. How much more would they be abused if everyone who paid rates were to have the legal right, as he would have, of going to a hospital for relief! Again, we believe that the expenses of management would be gravely increased, for as a rule rate-spending bodies are notorious for open-handedness. If a municipality were to cut down expenses its economy would be at the sacrifice of scientific efficiency, as in scientific directions it would not understand the necessity for spending. That the present methods of working our hospitals, metropolitan and provincial, might in many ways be improved no one can gainsay. But we cannot think that rate support is advisable.

## THE RESULTS OF PHYSICAL OVERSTRAIN IN ATHLETES.

PROFESSOR G. F. LYDSTON of Illinois State University has published in *American Medicine* of March 7th an important paper on some of the injurious results of physical overstrain as observed by himself for a period of several years in professional and amateur athletes. The results refer to conditions of the heart and blood-vessels and of the other internal organs which could be legitimately traced to be the outcome of severe physical overstrain repeatedly undergone both in training and in actual athletic contests, especially by professional athletes. An account of some of the more immediate effects of athletic competitions on the heart as observed in the case of students at American universities by Professor Stengel of Philadelphia was given in a leading article in THE LANCET[1] three years ago, and in our last issue at p. 931 reference was also made to observations on athletes who competed in the recent "Olympian" races in America. Professor Lydston states that athletes, even while in their best "form," should never undertake feats which are inordinate and for which no system of preparation and training is sufficient. This should especially be the rule for athletes over the age of 30 years. In nearly all cases of persons who had indulged for several years in athletic competitions involving severe physical strain there were present some degree of endarteritis, hypertrophy of the heart, emphysema, and slight renal and hepatic congestion. Endarteritis—a fibroid and inelastic condition of the arteries—is, says Professor Lydston, a frequent and natural

[1] THE LANCET, Jan. 20th, 1900, p. 174.

result of athletic overstrain, and it is common in athletes of middle age. Hepatic congestion with tenderness of the liver was observed in three cases to follow severe muscular exertion, two cases being those of men training for boxing contests and the third that of a man who was competing in a barge race. In these three cases intractable dyspepsia lasting several weeks was associated with the hepatic condition noted. Renal congestion with slight albuminuria was observed to follow athletic contests in many instances. Exercise involving the lifting of heavy weights, with the lungs distended and respiration temporarily suspended, was frequently responsible for both cardiac dilatation and emphysema. Persons of middle age who are suffering from fibroid arteries as the result of syphilis, alcoholism, or gout are particularly recommended to avoid great muscular exertion or overstrain owing to the risk of developing aneurysm of the aorta or great vessels. In most of the middle-aged athletes examined by Professor Lydston there were observed both dilatation and slight fatty degeneration of the heart—a result which had been noted many years ago by the late Sir Benjamin Ward Richardson who said that there was scarcely a professional or celebrated amateur athlete in England who at the age of 50 years did not present symptoms of heart disease. Alcohol and tobacco, adds Professor Lydston, should be avoided by athletes or used only in the smallest quantities, since the effect of these substances upon the nervous system is to incite the subject to over-exertion, while even the strongest heart and muscular system are likely to undergo degenerative changes under the combined influence of severe athletic training, alcohol, and tobacco. Muscular exercise for purposes of attaining vigour and moderate skill is perfectly safe and natural, but athletic training for great feats with the object of making "records" is, adds Professor Lydston, unwise and injurious to health. The supreme final "spurt," which only a well-trained athlete can put forth and which has often secured victory in a race, has in some cases been observed to result in death or in profound physical prostration attended with acute and even permanent dilatation of the heart. Edward Hanlon, the famous oarsman, expressed the opinion that no man should train for or compete in athletics involving severe strain after the age of 30 years, a view in which Professor Sydston concurs. An athlete as he approaches middle age should, concludes Professor Lydston, cease to take part in difficult contests, since "the average athlete's arteries are older than those of the average healthy man who is not an athlete."

## THE TRAFFIC IN OLD HORSES.

ON many previous occasions[1] we have referred to the abominable traffic in old and broken-down horses, whereby weak, suffering, and worn-out animals are led down to the docks and thence conveyed to Rotterdam, there to be made into sausages. At the Thames police-court on March 30th two men were sentenced to one and two months' imprisonment respectively for cruelty to horses which were very lame and diseased by leading them through the streets. Hall, who was sentenced to the one month's imprisonment, is apparently horsekeeper to a dealer named Smith, and we earnestly hope that Smith will be charged with causing the horses so to be treated. In 1898 the Board of Agriculture issued an order with regard to this traffic in which it was made unlawful to convey from any port in the British Isles to any port outside the British Isles "any horse which, owing to age, infirmity, illness, fatigue, or any other reason, cannot be so conveyed without cruelty during the intended passage *and on landing*" (the italics are ours). We have formerly assumed that the words "and on landing" referred to the transit of the horse from the quay at the port of entry to the slaughterhouse. But the Board of Agriculture in a most courteous reply sent to us in answer to an inquiry has shown us that we were incorrect in our assumption. The words in question were inserted to prevent an animal from being shipped if it were in such a condition that it probably would not be able to walk after the voyage. The only Act under which the "travelling" of lame or weak horses through the streets can be interfered with is the Cruelty to Animals Act, provided, that is to say, that the horses in question are not affected with glanders or farcy. Owing to the order of the Board of Agriculture the conditions under which horses are shipped have been much improved, but in our opinion a new Act is necessary which should prevent the export of hopelessly lame, suffering, or weak horses. No doubt the trade is a lucrative one, but so was keeping a rat-pit or a cock-pit, and both these occupations have been made illegal, therefore we do not see why an equally if not more cruel trade should not be stopped.

[1] THE LANCET, Dec. 3rd, 1898 (p. 1492); and Feb. 16th (p. 495), and April 13th (p. 1035), and 27th (p. 1219), 1901.

## THE PENAL AND REFORMATORY TREATMENT OF HABITUAL INEBRIATES.

A BLUE-BOOK containing a collection of British, colonial, and foreign statutes relating to the penal and reformatory treatment of habitual inebriates has recently been published as a supplement to the report of the inspector under the Inebriates Acts for the year 1901.[1] Mr. R. Welsh Branthwaite, the inspector, remarks at the outset that legislation for the repression of drunkenness may be conveniently divided into (1) that which provides for limitations and penalties on the sale or the seller; and (2) that which provides for the punishment, restraint, or reformatory treatment of the drunkard. The present collection of statutes deals only with the second of these two groups and it has been compiled for the information of those who are interested in the subject "in the hope that it may, by increasing general knowledge, prove of value should any question arise in future as to the possibility of amendment or extension of our existing powers." These statutes are extremely voluminous and present great diversity in their details. They may, however, according to their methods of dealing with the drunkard be classified as providing (1) for the infliction of penalties such as fines or short terms of imprisonment; (2) for control in penal establishments for lengthened periods; (3) for "interdiction"—namely, the prohibition of the sale of liquor to persons who are known inebriates; (4) for the appointment of guardians endowed with legal power over the person and the estate of an inebriate; and (5) for the control in special institutions with a view to reformatory treatment. Reviewing these in their order it may be said that the infliction of punishments such as fines and short terms of imprisonment for drunkenness is practised in all countries and in Mr. Branthwaite's opinion is a legitimate and useful means of dealing with a large class of offenders, but when punishment ceases to be deterrent, as in the case of the habitual inebriate, it only serves to deteriorate the victim. Control of drunkards in penal establishments for lengthened periods is freely exercised in many lands without reformatory influence being seriously aimed at, the offenders being committed as ordinary prisoners to detention in prisons, houses of correction, or workhouses. "Interdiction," by prohibiting the sale of liquor to inebriates, is the simplest form of statutory interference and is apparently the most popular of such measures, especially in the United Kingdom, the British possessions, and various parts of the United States of America. Guardianship of inebriates as if they were minors or insane persons is provided for by the laws

[1] London: Eyre and Spottiswoode; Edinburgh: Oliver and Boyd, pp. 172, price 1s. 5d.

of some states or countries, such as Austria-Hungary, France, Germany, Nova Scotia, Maryland, British Columbia, New South Wales, Tasmania, two Swiss cantons, and Orange River Colony. Control of drunkards for the purpose of reformation is evidently the system which Mr. Branthwaite regards with most approval or at least with most hopefulness, and he remarks that the United States of America has the credit of being the first country to adopt legislation for this specific object. Dr. Benjamin Rush of Philadelphia is said to have been the first medical authority to urge that inebriety was a disease and that inebriates should be treated in specially organised asylums. His views appeared in an essay published in 1809 entitled "An Inquiry into the Effects of Ardent Spirits upon the Human Body and Mind." In 1830 Dr. Todd, in an address delivered before the Medical Society of Connecticut, urged that inebriety was a medical question of the same class as insanity and that inebriates should be treated in public institutions. In 1853 Dr. J. Edward Turner of Bath, Maine, addressed a public meeting in New York City on the need of an inebriate asylum, and in 1854 the legislature of the State of New York passed an Act giving a legal existence to the "United States Inebriate Asylum." This was the first asylum ever formed having for its distinct purpose the scientific care and study of inebriates. It was finally closed in 1879, principally, according to Dr. T. D. Crothers, in consequence of political influences and the too frequent change of officers. Mr. Branthwaite gives a list of 22 governments now possessing laws which permit of the control of inebriates for the purpose of reformation, and he concludes his very instructive report with a detailed analysis of their provisions.

## HEALTH STATISTICS OF THE CITY OF BUENOS AYRES IN JANUARY, 1903.

A CORRESPONDENT writes:—"A glance at the health statistics of Buenos Ayres (Argentine Republic) for the hottest month of the year will give the readers of THE LANCET a fair idea of the high standard of sanitation to which we have reached of late years. The total city population was 872,000, spread over an immense area, as most of the houses have still one storey and have good 'patios' open to sun and air, but the streets are narrow and run at right angles, due north and south and east and west. The mean temperature in January was between 80° and 85° F., with but a small drop at night; hence the nights are close and many sleep badly during the four summer months. There is a constant and good service of soft water from the River Plate which at present supplies two-thirds of the city and is being extended, while a like area is extremely well drained. Good wooden pavement is general in the centre of the city which is also lighted by electricity and has an unequalled service of electric tramways (overhead trolley system). The death statistics include 1166 deaths in a population of 872,000 during the month, of which total no less than 153 were certified as tuberculosis, 144 being of the pulmonary variety. Cancer and other malignant tumours caused 74 deaths, of which 35 were due to disease of the stomach and liver. Organic disease of the heart caused 70 deaths, 60 being acute endocarditis. Infantile diarrhœa accounted for 143 deaths, meningitis is marked as 83 (many, I fancy, being of infants), while cerebral hæmorrhage and congestion gave 61. No case of hydrophobia occurred and no epidemic disease was prevalent, no case being notified. There were 36 cases of Bright's disease and 14 of tetanus; suicides were 11. It is to be noted that in the two most important and wealthy central parishes there was not a single death from tuberculosis. Against the 1166 deaths there were in January 2632 births registered, of which 1354 were males and 1278 females, and 397 were illegitimate, so that the 'vegetative' increase of population was 1466 for the month." It is evident that a study of the sanitary organisation of the city would be highly interesting and instructive and we hope to publish at a near date a paper from our correspondent who is in a position to know how far he can rely upon available statistics.

## ACUTE DILATATION OF THE STOMACH.

IT is only within the last 30 years that it has been recognised that the stomach can dilate rapidly, within a few hours or days attaining an enormous size, for the first series of cases was not published by C. H. Fagge until 1873. Since the appearance of that paper many other instances have been recorded and the condition is now well recognised. It is, however, extremely rare, for in a paper read before the Royal Medical and Chirurgical Society of London in 1901 by Dr. H. Campbell Thomson only 10 cases were collected, including four previously unrecorded. In Mr. A. W. Mayo Robson and Mr. B. G. A. Moynihan's work on the Surgery of the Stomach six additional instances of this condition are detailed and scattered through medical literature are to be found isolated cases. A paper on the subject by Dr. C. R. Box and Mr. Cuthbert S. Wallace contains many cases. The symptoms are usually well defined: they are chiefly the sudden onset of vomiting of large quantities of fluid, often bile-stained, and a great diminution in the quantity of urine excreted. The physical signs of dilated stomach are present. A fatal result has followed in a few days, probably from exhaustion, in a very large proportion of the cases, but some have recovered in which the diagnosis was indubitable, and it is far from improbable that mild attacks of the condition are not recognised. Of its etiology we know but little. It is certainly not associated with chronic stenosis of the pylorus—and in this connexion it is of importance to bear in mind that in many of the cases the upper part of the duodenum has been found at the necropsy to be dilated also. The theory which has, perhaps, found most support is that which attributes the dilatation to interference with the nervous supply of the muscular walls of the stomach by which they became relaxed and the viscus readily distensible. It is, however, probable that there is some obstruction to the outflow of the gastric contents, for in some of the recorded cases the stomach walls have been very tense—a condition which could hardly arise from a paralytic relaxation and three theories have been suggested to account for the obstruction. The first explanation is that the duodenum is kinked by the depression of the distended stomach; the second theory is that the duodenum is compressed by the root of the mesentery and the superior mesenteric vessels which cross it. A third explanation has been advanced by Dr. Box and Mr. Wallace, who by experiment have ascertained that in the cadaver the stomach may be distended enormously with water even though the jejunum be cut right across, and they suggest that the stomach presses on the third part of the duodenum. There is, however, possibly another etiological factor in the production of acute dilatation of the stomach. In a large proportion of the recorded cases the symptoms have arisen shortly after the performance of a surgical operation. Mr. Henry Morris operated on a patient with a suppurating ankle-joint, and an hour later vomiting commenced and the patient died within 40 hours. An enormously dilated stomach was found post mortem. In another case a man's knee was excised, persistent vomiting occurred, and he died in 74 hours, and at the necropsy the stomach extended as low as the umbilicus. A very remarkable instance of acute gastric dilatation following operation is recorded in the present issue of THE LANCET (p. 1031). The patient, who was under the care of Dr. Box and Mr. W. H. Battle, suffered from acute

dilatation of the stomach within three days of an ovariotomy. With energetic treatment she completely recovered. In some cases the interval between the operation and the gastrectasis has been longer. Mr. T. R. Jessop excised the hip-joint in a woman, aged 26 years, and a month later symptoms of dilatation of the stomach appeared and an extreme degree of this condition was found post mortem. These cases are probably allied to the far commoner cases of "paralytic distension of the intestines" which occur after abdominal operations. In other cases there has been no operation, but some microbic infection has been present. A girl, 19 years of age, was admitted into the West London Hospital under the care of Dr. Donald W. C. Hood with an alveolar abscess; the abscess burst a few days later, but pneumonia supervened and on the next day she died and a very dilated stomach was found at the necropsy. In one of Dr. Thomson's cases the gastric dilatation was preceded by pneumonia and pleurisy. The post-operative form of acute dilatation of the stomach has been ascribed to the effect of the anæsthetic on the gastric nerves; others have attributed the lesion of the stomach to interference with the solar plexus at the operation, but there is little to support these theories, and it is much more probable that most of these cases of acute dilatation of the stomach are septic in origin. Perhaps the germs or their toxins may have a direct effect on the gastric muscular wall, or perhaps they may act on the abdominal plexuses of the sympathetic nervous system. At present it is impossible to come to a decision on this matter, but a general survey of the recorded cases goes far to establish the probability of a microbic cause. Careful bacteriological observation in future cases may assist in establishing or disproving this theory. With regard to treatment the most important point appears to be the adoption of the semi-prone position, the patient lying on the right side; in this way the stomach can empty itself more readily and the pressure on the duodenum is relieved. Lavage is probably also indicated, but it must obviously be performed with extreme care. Electrical treatment to the abdomen seems likely also to be useful by inducing gastric contractions, and strychnine should be employed hypodermically.

## SANITARY CONGRESS AT BRADFORD, 1903.

THE twenty-first congress of the Sanitary Institute will be held at Bradford, under the presidency of the Earl of Stamford, from July 7th to 11th, 1903. On Monday, July 6th, at noon a reception room for the members of the congress will be opened at the Municipal Technical College and the reception will take place on the following day by the Mayor of Bradford (Alderman David Wade, J.P.) who is also chairman of the local general committee of the congress. Then will follow a public luncheon, the opening of the Health Exhibition, and the inaugural address to the congress by the President. On July 8th there will be conferences as follows: of municipal representatives, on industrial hygiene, of medical officers of health, of engineers and surveyors to county and other sanitary authorities, of veterinary inspectors, of sanitary inspectors, of ladies on hygiene, and on the hygiene of school life. On July 9th and 10th there will be meetings of the Section of Sanitary Science and Preventive Medicine, under the presidency of Professor T. Clifford Allbutt; of the Section of Engineering and Architecture, under the presidency of Mr. Maurice Fitzmaurice, C.M.G., M.I.C.E.; and of the Section of Physics, Chemistry, and Biology, under the presidency of Professor C. Hunter Stewart. On Saturday, July 11th, excursions and visits to places of interest will take place. 46 subjects are suggested for discussion or papers and the council invites papers, which are to be limited to about 3000 words and must be accompanied by an abstract. No previously published paper can be accepted. Authors should forward their manuscripts by post as early as possible, and in any case not later than June 9th, addressed to the Secretary, Sanitary Institute, Margaret-street, London, W. The railway companies have decided to issue return tickets to Bradford at a single fare and a quarter. The local honorary secretary of the Congress is Dr. W. Arnold Evans Health Department, Town Hall, Bradford.

## CANCER IN IRELAND.

A SPECIAL report upon cancer in Ireland has been prepared by Mr. Robert E Matheson, Registrar-General in Ireland, and laid before the Lord Lieutenant and Parliament. The report forms a supplement to Mr. Matheson's thirty-eighth annual report of marriages, births, and deaths within his jurisdiction and, being well illustrated with statistical tables and furnished with notes by physicians and surgeons in charge of hospitals, makes very interesting reading for the medical profession. The steady increase in the recorded mortality from cancer in all three divisions of the United Kingdom has been very ominous during the last quarter of a century. The rate of mortality from cancer between 1864 and 1900 has gone up in England (including Wales) from 3·9 per 10,000 to 8·3, in Scotland from 4·3 to 8, and in Ireland from 2·7 to 6·1. Making every allowance for increased care in notification and registration the figures must still be significant. Ireland enjoys the best position of the three divisions, but in 1901 the mortality rate had risen to 6·5 per 10,000. 55 per cent. of the deaths were among females, 502 deaths out of 1597 being due to malignant disease of the breast (265) and the uterus (237). The mortality from cancer in Ireland is largely due to the high death-rate from the disease in the counties of Armagh (over 9 per 10,000) and Carlow, Dublin, Londonderry, and Meath (between 7 and 9 per 10,000). The influences of physical conformation or of geological formation were at once suspected, but both have been considered without any conclusions of a definite nature being reached. We hope to discuss further this suggestive report upon a highly important subject.

## THE SCHOOL BOARD FOR LONDON AND LECTURES ON HYGIENE.

AT the meeting of the School Board for London held on April 2nd the chairman of the health committee reported that his committee had received a suggestion from Dr. R. J. Collie, the medical superintendent of the first-aid and home nursing classes, with reference to lectures on a course of hygiene. Dr. Collie proposed that a course of lectures should be given in the evening continuation schools upon such matters as ventilation, ill-chosen food in childhood, clothing, cleanliness, removal of refuse in health and in sickness, and on other matters dealing with hygiene. Dr. Collie mentioned that 42,000 deaths per annum occurred in the British Islands from tuberculosis and added that the province of hygiene was to teach people that "consumption and many other allied diseases are preventable by a knowledge of, and obedience to, the laws of health." Dr. Collie thought that the lessons should be given fortnightly by medical practitioners. The chairman of the health committee therefore moved that "medical practitioners be engaged to lecture on health fortnightly next session in not more than 20 schools at a fee of £1 1s. per lecture." The board agreed and the motion was therefore carried. The idea, we think, is a very good one, but we have some doubts as to whether the lecturers will succeed in impressing upon those who most need it the importance of ventilation and the other matters with which the lectures are to deal. It is difficult enough to keep a house clean in London even with servants to assist

in cleaning it, and the unfortunate conditions in which many thousands of families live—namely, in a one- or two-roomed tenement—make cleanliness also impossible. Moreover, the average working mother will never be persuaded that cheese, herrings, and bacon rind are not fitting food for infants. But the School Board deserves credit for its attempt to wrestle with the problem and we wish it every success.

## THE PREVALENCE OF SMALL-POX.

THE Local Government Board for Scotland intimates that during the period from March 16th to 31st inclusive 4 cases of small-pox have been notified to it from the burgh of Dundee, 1 from the burgh of Leith, 5 from the burgh of Monifieth (all one family), and 1 from the parish of Broughton in Peebles-shire. Small-pox is still rife in many towns in the North of England; Manchester, Liverpool, Durham, and Bury are all affected, while cases are also reported from Croydon and Kingston. The last two towns had apparently been infected by tramps. In Dublin on April 6th there were 15 small-pox patients in the hospital and 3 deaths had occurred from the disease. In London there is a slight recrudescence of the disease and at midnight on April 6th there were 14 cases under treatment in the Metropolitan Asylums Board hospital at Long Reach. On April 7th a case from Paddington was admitted.

## THE APPLICATION OF ADRENALIN TO IRREDUCIBLE HÆMORRHOIDS WITH THREATENED STRANGULATION.

AT the meeting of the Société Médicale des Hôpitaux of Paris on Jan. 23rd M. A. Mossé called attention to the value of the application of adrenalin to irreducible hæmorrhoids threatened with strangulation—a method recommended by M. Bouchard in the *Presse Médicale* of Dec. 31st, 1902. A man, aged 36 years, was admitted to hospital on Dec. 18th, 1902, with a painful hæmorrhoidal mass which extended three or four centimetres from the anus. It consisted of external hæmorrhoids which covered a black internal hæmorrhoid. Symptoms began five days before with pain and swelling in the anal region. A warm bath was ordered. On the following day the condition was little changed. A tampon of cotton-wool soaked in a solution of adrenalin, 1 in 2000, was placed in contact with the most turgescent part of the hæmorrhoids. In eight minutes the part became paler and the turgescence diminished. The same effect was produced by applying adrenalin to the other parts. The patient became more comfortable but he was not free from pain and reduction did not seem feasible. He passed a better night. On the next morning the local condition was better than before the application but the tension and volume of the hæmorrhoids seemed greater than when the adrenalin had produced its immediate effect. A tampon soaked in solution of adrenalin, 1 in 1000, was placed in contact with the internal as well as the external hæmorrhoids. The congestion and pain diminished more rapidly than on the previous day. In 30 minutes the right side of the external swelling subsided and lost its red colour, while the skin formed folds. Another tampon was applied and the left side subsided and the patient could sit up and became free from pain. But digital pressure provoked pain and contraction of the sphincter and it was thought best to postpone reduction of the hæmorrhoids. Under the influence of the adrenalin the pulse fell to 54. In the evening reduction was easily performed. During the night two stools were passed without pain. On Dec. 21st the patient did not complain of hæmorrhoids, but examination showed that they had recurred, no doubt as the result of defecation, but they were much smaller than before and strangulation was not threatened. Under further applications of a 1 in 1000 solution of adrenalin recovery became complete. Though it cannot be said that the adrenalin cured the patient of his hæmorrhoids it obviated an operation which otherwise seemed necessary.

## JAUNDICE LASTING 50 YEARS.

IN the *Quarterly Medical Journal for Yorkshire and Adjoining Counties* for February Dr. W. T. Cocking has described a remarkable case. A woman, aged 50 years, who had had persistent jaundice since the age of three weeks, went to a hospital for presbyopia. The skin was orange-coloured and there was marked conjunctival jaundice. The liver was felt three fingers'-breadth below the ribs. The gall-bladder was distended and felt as an elongated tumour with the lower end below the level of the umbilicus. The fæces were of normal colour. The urine was high coloured and gave a faint Gmelin's reaction. She had had two illnesses in which there was abdominal pain and the jaundice became more intense and which were attributed to gall-stones. Dr. Cocking thinks that the symptoms point to partial obstruction of the common bile duct from congenital stenosis. An objection to this diagnosis is that all the recorded cases have ended fatally in a few weeks. But some cases of recovery from infantile jaundice have been recorded which from their symptoms and from the fact of other children of the family having suffered from the malady appear to have been cases of congenital stenosis. Perhaps this case was an example of partial recovery. A confirmatory fact is that a child of the patient died at the age of a few weeks with symptoms of the disease.

## THE PISTOLS BILL.

A BILL "to Regulate the Sale and Use of Pistols or other Firearms" has been introduced in the House of Commons and has passed its second reading. As an attempt to diminish the evils arising out of the useless and dangerous traffic in cheap revolvers carried on by ironmongers and keepers of toy-shops it deserves some measure of support, but it can hardly be regarded as a drastic measure or as one which is even likely to be effective within the limits to which its action is confined. It is proposed that it shall be unlawful for any person to sell by retail a pistol to any person who cannot produce a gun or game licence and that on the sale or letting of a pistol an entry shall be made by the vendor in a book to be kept for that purpose, recording the name and address of the purchaser or hirer and the office from which the licence was issued. Exception is to be made in the case of those who are enabled by the existing law to carry firearms without licence, such as soldiers carrying them for military purposes, and in the case of these a record is to be kept of the circumstances which procure them their exemption. A penalty of £5 is imposed for the contravention of these provisions or for obtaining the sale of a pistol by any false statement. Persons under 16 years of age are not to be allowed to buy, to hire, to use, or to carry pistols unless they are exempt under the existing law from the necessity of having licences, and are to be subject to a penalty of 40*s.* for doing so, while those selling to them are to be liable to a fine of £5. The provisions of the Bill do not apply to the purchase of antique weapons as curiosities, nor is it to have effect in Ireland. It will be observed that while to a considerable extent the pranks of the schoolboy and juvenile hooligan may be deprived of an attractive feature by the proposed law, the chief restriction to be placed upon the present free trade in firearms is that the original buyer of a pistol in a shop will have to produce a licence costing 10*s.* and to furnish a name and address. In point of law no doubt a person having a licence who goes into a shop and buys a pistol and then hands it over to some

one else either with or without profit to himself will be under the obligation of asking to see a licence before he parts with his purchase and of recording the transaction in a book. It is not easy, however, to see how this duty can be enforced upon him. Nor is it easy to see why any disreputable character who has taken out a licence should not privately distribute pistols to as many of his friends and acquaintances as he chooses at a small advance upon the present low prices and make a fair profit on the transactions. His risk of detection is not likely to be great. In order to protect the community effectively against the appreciable and apparently increasing danger of the cheap pistol, such a tax should be imposed upon weapons of this class and such restrictions placed upon their ownership as would stamp out the trade altogether, and not merely injure it to a limited extent, as the present Bill would do. The tax could be remitted or returned in the case of persons requiring revolvers for the purposes of military and police service or for use abroad. The householder, should he desire to defend himself against burglars with a weapon so dangerous and uncertain in unskilled hands, should be made to pay for the privilege of doing so. If he is a man of substance the initial cost of his weapon will be a matter of small moment to him, and he will require no annual licence in order to keep it at home for defensive purposes. No honest British citizen has the smallest need to carry a pistol about with him, and it is desirable that persons of a different class should, as far as possible, be prevented from doing so. This, however, will scarcely be effected by adding to the purchase of the weapons in question conditions easy to comply with and not difficult to evade.

## AN OLD CASE OF CONGENITAL HYPERTROPHY OF THE PYLORUS.

THE old adage, "There is nothing new under the sun," is often illustrated in medicine. Congenital hypertrophy of the pylorus has but recently attracted attention and only about 50 cases have been recorded. But in one of his scholarly and philosophical addresses on the Educational Value of the Medical Society, which he gave at the centennial celebration of the New Haven Medical Association and which is published in the *Boston Medical and Surgical Journal* of March 12th, Professor William Osler quoted a very ancient case which he had disinterred from the transactions of the society for 1788. Dr. Hezekiah Beardsley there reported a case of Scirrhus of the Pylorus in an Infant. Every feature of the disease as now known is noted—the constant vomiting, the leanness, and the wizened old look of the child. The diagnosis was made four months before death. The necropsy showed a dilated and hypertrophied stomach. "The pylorus was invested with a hard compact substance or schirrosity which so completely obstructed the passage into the duodenum as to admit with the greatest difficulty the finest fluid." Professor Osler points the moral that if other men had been as accurate and as careful as Dr. Beardsley and if other societies had followed the example of the New Haven Society not only would this rare disease have been long ago recognised but many other diseases would have yielded their secrets. But there is no more difficult art than the art of observation, and for some it is quite as difficult to record an observation plainly and briefly.

## OVERCROWDING ON THE UNDERGROUND EAST-END TRAINS.

SOME few years ago the inhabitants of East Ham were wont to inform their friends that the village was situated in Essex and if fond of alliteration might have added England to the address. Now all is changed; the population has increased by leaps and bounds; rows and rows of houses at very moderate rentals have sprung up almost with the rapidity of Aladdin's palace. The railway service, however, between this place and the City when the people are returning from, or going to, business is a standing disgrace to any civilised community. In the journey from Charing Cross to East Ham in a first- or second-class carriage by the new connexion of the underground with the London, Tilbury, and Southend Railway it is a common experience to find about 18 or more persons who, besides enduring great discomfort, run perilously near to being suffocated. The railway company makes little use, if any, of disinfectants for these dirty and loathsome boxes, for the dignified name of carriage is not applicable to them. In the face of all this the placards at the stations ironically inform the passengers of the "advantages of travel," while there are warnings posted for the benefit of those who disregard the laws of the company, statements such as "£10 fine and costs," "three months' hard," and "six strokes of the birch-rod" being displayed in large type in the account of some cases of conviction. Close contact, which must necessarily be the case, with those who have been engaged in honourable but dirty occupations is very annoying to clerical and professional men who are of all others compelled to keep their clothing neat and clean. Surely the Board of Trade should inquire into this serious condition of East-end railway traffic.

## THE DISTRIBUTION OF PLAGUE.

As regards Hong-Kong a telegram from the Governor received at the Colonial Office on March 31st states that for the week ending March 28th there were 28 cases of bubonic plague and 24 deaths from the disease. For the week ending April 4th there were 66 cases of plague and 59 deaths, 1 being that of a European.

# Looking Back.

FROM

## THE LANCET, *SATURDAY*, APRIL 9, 1825.

### SURGICAL LECTURES,[1]

DELIVERED BY

### MR. ABERNETHY.

*Theatre, St. Bartholomew's Hospital.*

LECTURE 26.

*Gunshot Wounds.*

Now I have been in the habit of mentioning a case here to show the inutility of searching for bullets, and also to show that they may be embedded in parts without much injury to the general health; I adopt this mode of impressing the case upon your memories; but if persons should be present who are taking down what I say, I do not know whether it is best to say anything about it or not. As there is no law or equity to be had in the country to prevent such practices, we can't help ourselves (a long laugh); and as it is probable that the Editors of THE LANCET have already possessed themselves of a copy of my lectures, I may, perhaps, as well mention the case now, as I consider that it shows the impossibility of always extracting balls, even if we were to try. Sir Ralph Abercrombie received a musket shot on the upper part of the thigh bone; the ball penetrated through the muscles, fascia, and so on, and lodged in the upper part of the trochanter major; the surgeons were very anxious to extract the ball, and made many attempts to do so, enlarged the wound and probed and searched for the ball; however, they did not extract it, and the General, on his passage home, died. The

[1] Only portions of the lectures have been transcribed.

surgeon of the ship, after he was dead, examined the wound, and found the ball sticking so firmly in the trochanter major, that he was absolutely obliged to remove a portion of the bone with a trephine before he could get it out. I do not mean to impute the death of this person to the attempts made to extract the ball, but I mean to say this, that the enlargement of the wound, and searching for the bullet, and so on, in an old man and in a bad climate too, were things not devoid of danger.

## LECTURE 28.

### *Whitlow, or Paronychia.*

There are *sores* which form about the *fingers and toes* which have a very curious character. There is a thickening of the parts around the ulcer, the ulcer eats under the nail, and the whole of the nail is detached. I have attempted to describe them by saying that there is a thickening of the parts around, with a glossy surface, attended with a lancinating pain, and the discharge of a sanies or ichor; the pain is so bad as to prevent the patient from sleeping at night. When I was quite young, Sir CHARLES BLICKE, with whom I served my apprenticeship, used to pride himself very much on his curing these sores; and he used to do this by the use of Plunket's caustic a quack preparation containing the white oxide of arsenic and flour of sulphur, with a handful of ranunculus, dog fennel, and so on; and I used to be sent to gather these "yarbs," to dry them in the sun, and powder them. (A laugh.) But he used to put it on the ulcers, mixed with basilicon, as a thick dressing, as Plunket applied it to cancers. In about three days it occasioned a slough, a new surface was produced, and very often the ulcer healed, but the process was very severe and painful.

## FOREIGN DEPARTMENT.

ANALYSIS OF FOREIGN MEDICAL JOURNALS.

ANNALI UNIVERS. DI MEDICINA, DA OMODEI OCT. NOV. DEC. 1874.

### *A new mode of Cure for the Toothache.*

Signor Fattori has been ingenious enough to propose, as a remedy for odontalgia, the division of the nerve supplying the diseased tooth, and to effect this he has invented a neat little instrument, a sort of trepan, to which *boriers* of different sizes are attached, by which he perforates different parts of the painful tooth, and cuts through the nerve. The tooth is, by this operation, for ever after rendered insensible.

## MEDICINE AND THE LAW.

### *Insanity and Criminal Responsibility.*

A CONSIDERABLE amount of comment appears to have been aroused by the result of a trial for murder in the State of New York, U.S.A., owing to the course taken by the learned judge and the reasons given for it by him. The case was one in which there was evidence that the accused was, in the words of the judge, "mentally unbalanced and that he had delusions"; but, on the other hand, it was not shown that he could not have distinguished between right and wrong. In these circumstances Mr. Justice Herrick advised the defending counsel to tender a plea of guilty of murder in the second degree and recommended the prosecuting counsel to be satisfied with it. This plea, which is of course not known to the English criminal law, enabled the judge to pass a sentence of imprisonment, instead of one of death, which he accordingly did. It is not surprising that such a conclusion to a trial for murder should excite unfavourable criticism. Looked at from a British point of view, and, we think, in the light of common sense, it is not desirable that a man should be charged with a terrible crime and allowed to confess a lesser one in order to evade the difficulty which arises where inconclusive evidence of mental derangement is given. Nor is it desirable that a person of unsound mind should be sent to prison as sane. Where a jury of laymen has to arrive at a definite finding upon a matter as to which experts may legitimately differ there must, we fear, always be difficulty, while in directing juries as to the law and as to the conclusions to be drawn from the evidence before them some judges appear to feel more acutely than others the great responsibility resting upon them where the life of the prisoner depends upon the verdict to be returned. The practice, however, adopted in England is, on the whole, a just and a merciful one. The Treasury officials who are responsible for the prosecution in any case where there is ground for believing that the defence of insanity will be raised instruct physicians of high standing and of special knowledge in lunacy to examine the prisoner and to report upon his condition. These experts are present at the trial, to be called either by the prosecution or the defence, both sides being aware before the trial of the views which they have expressed. The evidence of medical men of high standing, occupying an almost judicial position in the determination of such an issue, or at least a position of absolute impartiality, naturally has considerable weight, and rightly so, in guiding both judge and jury. Two criminal trials which a few years ago attracted attention illustrate this. In the one case Amelia Dyer, the baby farmer, was convicted and hanged in spite of evidence which included the fact that she had at one time been a certified lunatic; and in the other Richard Arthur Prince, who stabbed Mr. Terriss, the popular actor, was found to be guilty but insane, although before his terrible act no one had thought him much more than a starving and disappointed man. In both cases, it will be found, witnesses who at the instance of the Treasury examined the prisoner were called, in the case of Dyer for the prosecution and in the case of Prince by the defence, and in both cases the summing-up and verdict indorsed their opinions. In either case a verdict not justified by the facts of the case—such as, for example, one of manslaughter—would have been regarded as inconsistent with the law and therefore undesirable, just as the plea of guilty of murder in the second degree accepted by Mr. Justice Herrick has been regarded in the American state in which the incident took place. The *Medico-Legal Journal of New York* has commented on the subject of "medical and legal insanity" at some length with reference to this trial and the learned judge has in its columns made an interesting statement of the reasons which influenced him in taking the course that has been criticised.

## THE PREVENTION OF CONSUMPTION AND OTHER FORMS OF TUBERCULOSIS.

ANNUAL MEETING OF THE NATIONAL ASSOCIATION.

THE fourth annual general meeting of the National Association for the Prevention of Consumption and Other Forms of Tuberculosis was held on March 17th, the Earl of DERBY being in the chair. In moving the adoption of the report Lord DERBY referred to the interest which foreign nations were now taking in the subject, as shown by the holding of the International Conference on Tuberculosis which met in Berlin last October[1] for the purpose of forming an international bureau for the prevention of consumption. The constitution of this bureau provided that delegates should be elected by the national associations of different countries as representatives on its inner council, the British representatives being Sir James Blyth, Bart., Mr. Malcolm A. Morris, Mr. Charles Rube, Dr. Nathan Raw, and Dr. Alfred P. Hillier. Dr. Raw and Dr. Hillier proceeded to Berlin and represented the association at the conference. Dr. C. Theodore Williams also attended the conference at the desire of King Edward. The council had voted £100 to the international fund for the maintenance of the bureau. The report went on to state that according to recently published statistics the tuberculosis death-rate in Prussia had dropped from 31 per 10,000 in 1886 to 21 per 10,000 in 1900. During that same period the English tuberculosis death-rate had fallen only from 24 to 19 per 10,000. In the opinion of the council of the association the causes of the fall in the Prussian tuberculosis death-rate were (1) the wide-spread knowledge as to the infectious character of tuberculosis, which has led to precautions being taken amongst the working classes; (2) the provision of a large number of sanatoriums for the working classes; and (3) the early and systematic resort to sanatoriums which the Workmen's State Insurance Department in Germany

[1] THE LANCET, Nov. 1st (p. 1216) and 8th (p. 1276), 1902.

encouraged and assisted. Voluntary notification of consumption had been adopted in ten London boroughs, in 16 provincial cities and boroughs, and in Edinburgh. The council expressed strong disapproval of a recommendation made by a departmental committee (Dr. John Haldane and Mr. E. H. Osborn) on the ventilation of factories and workshops. This recommendation was to the effect that when gas or oil was used for lighting the proportion of carbonic acid per 10,000 volumes of air "shall not exceed 20 volumes after dark or before the first hour of daylight" and the council very much preferred the standard of nine volumes of carbonic acid per 10,000 of air as fixed by an Act passed in 1867 for humidified cotton cloth factories. There were now some 52 sanatoriums in the United Kingdon containing a total of 2385 beds Sanatoriums for the early cases and homes for the advanced cases amongst the poorest classes were said to be a pressing necessity. The adoption of the report was seconded by Sir JAMES CRICHTON BROWNE and agreed to. The secretary stated that the London firm of Messrs. Wernher, Beit, and Co. had contributed more than £20,000 to the erection of a sanatorium of 64 beds at Pinewood, near Wokingham, and that it was their intention to hand it over as a free gift to the association which was known by the name of the London Open-air Sanatorium.

### SANATORIUM SYSTEMS IN ENGLAND AND FRANCE.

Dr. A. A. Warden, visiting physician of the Hertford British Hospital in Paris, has sent us a summary of a long and very important article on tuberculosis and sanatoriums which has been published by Professor Grancher in the *Bulletin Médical* of March 7th. Professor Grancher has taken no part in the controversy on the subject of sanatoriums that has been carried on since the end of 1899 and his utterance on the subject has been looked forward to with some interest in France. Questions relating to tuberculosis have engaged his attention for a great number of years, and so far back as 1878 he published in the *Gazette des Hôpitaux* a series of articles on phthisis in the Paris hospitals, maintaining that the only proper treatment consisted in giving plenty of good food, fresh air, and rest. At that time, however, the incurability of phthisis was an accepted doctrine and in spite of Villemin's investigations contagion was hardly thought of until the discovery of the bacillus in 1882. In his recent article in the *Bulletin Médical* Professor Grancher discusses the subject in a variety of aspects—namely, (1) tuberculosis as an individual disease, (2) tuberculosis as a social disease, (3) the working classes, (4) the middle classes, (5) the wealthy classes, and (6) sanatoriums. Under the last heading he expresses himself very favourably with regard to the English system in which the sanatorium becomes an aid to public hygiene; on the other hand, he is opposed to the German system in which the sanatorium is the *primum movens*, the capital instrument in the struggle against tuberculosis. In the event of the father of a family becoming tuberculous he thinks that it might perhaps be wiser to spend money in isolating the children in the country rather than in sending the father to a sanatorium at far greater expense and with no certainty of cure. He considers that from two to three years are required for the cure of tuberculosis, whereas sanatoriums keep the patients for only a few months, during which time their condition may have improved but they are not cured. Sanatorium treatment is very expensive and in certain circumstances it does no more than postpone the issue, in which case a double error, both medical and economic, is committed. In France additional difficulties are introduced by the frequent changes of administrative bodies. For instance, in 1896 the Paris Municipal Council voted a sum of 12,000,000 francs (£480,000) for reforms in the hospital treatment of phthisical patients, but since the election of a new council nothing was being done. In conclusion, Professor Grancher recommends that the French sanatorium system should as far as possible follow the policy already adopted in England.

## ASYLUM REPORTS.

*City of London Asylum near Dartford (Annual Report for 1902).*—The average number of patients resident during the year was 518, comprising 225 males and 293 females. The admissions during the year amounted to 198—viz., 95 males and 103 females. Of these, 185 were first admissions. Dr. Ernest W. White, the medical superintendent, states in his report that as regards bodily health on admission 38 males and 61 females were in bad or feeble health. "100 of the 198 admissions were either chronic cases with mental disease of 12 months' duration and upwards, or cases in which there had been a previous attack of insanity." The commonest causes of insanity in the admissions were hereditary predisposition, alcoholic intemperance, senile decay, and grave bodily diseases and disorders. Adversity, fright, shock, and the climacteric were causes in a few instances. The number of patients discharged as recovered during the year amounted to 47—viz., 22 males and 25 females—or 9·1 per cent. of the average number resident. The deaths during the year amounted to 55, or 10·6 per cent. as calculated on the same basis. 46 post-mortem examinations were made. Of the deaths two were due to influenza, three to cardiac disease, four to dysentery, six to pulmonary tuberculosis, eight to renal disease, ten to senile decay, 11 to general paralysis of the insane, and the rest to other causes. Apart from the patients referred to above, who were paupers, 94 private patients, of whom 33 were males and 61 were females, were admitted during the year. Of these 38 were transferred from other asylums. 13 males and seven females were transferred from the private to the rate-paid class. At the close of the year there were in residence 207 private patients. 25 patients were discharged as recovered during the year, or 12·1 per cent. of the average number resident. There were no deaths among these patients. An epidemic of influenza occurred in March. 23 patients and two nurses were affected and had to be isolated for treatment in the cottage hospital. Two patients died and the rest made good recoveries. "I am more than ever convinced," adds Dr. White, "that early isolation is essential to prevent the extension of influenza in such communities as ours. On this occasion there was a little delay at first. ..... Three times during the recent small-pox epidemic it was deemed advisable to call our non-resident staff, artisans and married attendants, into residence. This, coupled with the discontinuance of the visiting and the complete system of revaccination we have enforced for ten years past, without doubt saved us entirely from the dread scourge [of small-pox]." There were six cases of asylum dysentery, four of which terminated fatally. The farm showed a profit for the year of £205. 24,150 eggs and 316 head of poultry were produced in the farm. The Commissioners in Lunacy state in their report that in all parts of the asylum there was a general air of comfort, that there was no lack of means of amusement and objects of interest to the patients, that the beds and dormitories were in excellent order, and that the medical case-books and records were well kept. The committee of visitors state in its report that Hill House, a small property opposite the asylum estate, was purchased and is being converted into a residence for ten female patients of the private class. The expenditure on building and repairs during the year amounted to £4183.

## THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

### ELECTION OF PRESIDENT.

AN extraordinary Comitia was held on Monday, April 6th, Sir WILLIAM SELBY CHURCH, Bart., K C B., the President, being in the chair.

The PRESIDENT gave the annual address, in the course of which he reviewed the principal events which had occurred in connexion with the College during the past year. He reminded the Fellows of the anxiety felt by the nation during the illness of His Majesty the King and of the relief which was afforded by the bulletins which recorded the favourable course of the malady. The College had presented an address to His Majesty after his recovery, and a gracious reply was received through the Home Secretary. The honours which had been conferred on Fellows during the year and the awards which had been distributed were referred to, and the lectures of the year were also noticed. The important work which was being carried out by the Cancer Investigation Committee was also dwelt upon.

The PRESIDENT then proceeded to read short obituary notices of the Fellows of the College who had died during

the year—namely, Dr. Edward Long Fox, Dr. William Miller Ord, Dr. John Wickenford Washbourn, Dr. John Curnow, Dr. Henry Oldham, Dr. Thomas Shapter, Dr. Richard Chandler, Dr. Alexander Prior, and Dr. Samuel Fenwick.

The President then vacated the chair. Dr. F. W. PAVY proposed a vote of thanks to Sir William Church for the address, with a request that it might be printed; this was seconded by the REGISTRAR (Dr. E. Liveing), and carried. The PRESIDENT thanked the College and consented to the wishes of the Fellows.

The election of President then took place with the result that Sir William Church was re-elected by a large majority. The numbers were:—Sir William Church, 83 votes; Sir R Douglas Powell, 11; Dr. P. H. Pye-Smith, 7; Sir William H. Broadbent, 4; Dr. F. Pavy, 1; and Dr. W. H. Dickinson, 1.

Sir William Church was then presented with the insignia of the office of President by the Senior Censor (Sir R. Douglas Powell) and gave his faith to the College. He thanked the Fellows for the honour that they had done him in again electing him as President.

Licences to practise medicine were granted to three gentlemen who had passed the required examinations.

A report was received from the Laboratories Committee.

The following communications were received:—From the Registrar of the General Medical Council. From the Secretary of the Royal College of Surgeons of England (2) reporting certain proceedings of the Council on Feb. 12th and March 12th.

The PRESIDENT then dissolved the Comitia.

## CHOLERA IN THE TURKISH EMPIRE.

(FROM THE BRITISH DELEGATE TO THE OTTOMAN BOARD OF HEALTH.)

AFTER one month's apparent absence cholera has reappeared in Damascus and its neighbourhood. At the time of writing my last note to THE LANCET[1] on this subject from five to ten deaths were occurring daily in that city. In the first half of February the numbers diminished and on the 17th of that month what was believed to have been the last case of the disease there was recorded. Measures were in consequence relaxed; the ten days' land quarantine imposed by the local authorities at Merijan, between Damascus and Beirut, was reduced to five days and later abolished, and the only measure retained along the Syrian coast was a "medical visit" on departing from Beirut. But on March 18th the disease reappeared both in Damascus and in the villages around. On that date six cases were officially reported to have occurred in the Jewish quarter of the city, three others in the Christian quarter, one death at Medan, and two among the troops in Damascus. The subsequent course of the disease has been as follows:—

| | Cases. | Deaths. |
|---|---|---|
| March 19th | 4 | 7 |
| ,, 20th | 4 | 5 |
| ,, 21st | 6 | 6 |
| ,, 22nd | 5 | 5 |
| ,, 23rd | 4 | 6 |
| ,, 24th | 4 | 5 |
| ,, 25th | 4 | 1 |
| ,, 26th | 3 | 2 |
| ,, 27th | 3 | 1 |
| ,, 28th | 1 | 2 |
| ,, 29th | 0 | 4 |
| ,, 30th | 2 | 3 |

It is impossible at present to speak with certainty as to the explanation of this revival of cholera in Damascus. Locally it has been attributed to a re-importation of infection from the villages around by means of the traffic in rags. A second explanation put forward is that the infection has been imported from Egypt in rags. The latter view finds little to support it. Cholera completely disappeared from Alexandria before the end of January and there has been no revival of it since. Moreover, the rag trade has been prohibited between Egypt and Turkish ports practically ever since plague has been present in Egypt. It is true that in spite of this prohibition a contraband trade in rags may perhaps be carried on between Egypt and Syria. But since cholera is known to have persisted in Damascus, and possibly in the villages around, for at least one month after its disappearance from Alexandria, the present revival of the disease may more reasonably be ascribed to a renewed activity of infection remaining on the spot than to a re-importation from Egypt.

The cholera news received from the villages in the interior of the vilayet of Damascus has been exceedingly scanty throughout; and it is quite possible that the disease has been continuously present in one or more of these villages without the fact being reported to Constantinople. Even in the city of Damascus itself there is reason to believe that the numbers of cases and deaths greatly exceeded those returned in the official reports. Up to the date of the apparent cessation of the epidemic in February 204 cases of, and 310 deaths from, cholera had been officially reported as occurring in the city, and 187 deaths in the interior. The discrepancy between the numbers of cases and deaths shows clearly that a large number of cases which recovered must have escaped record; and it is also believed that the number of deaths is far below the truth. Consular reports have given the following approximate estimates of the total mortality: in Damascus itself, about 600 deaths; in the villages of Jober, Urbin, Kafr-Batana, Haresta, Beyt-Sawa, and others, all in the neighbourhood of Damascus, 400 deaths; and in other villages in the interior, from 400 to 500 deaths. This would make a total of some 1500 or more deaths for the whole vilayet.

The population of Damascus is estimated at some 250,000 inhabitants. The infection of cholera seems to have been largely spread amongst them by means of the water-supply. The principal source of water-supply consists of five streams which pass through the city. In the month of January several cases of cholera occurred in the Hamidié barracks, close to the railway station, on the outskirts of the city. One of the five streams just referred to is said to pass within a few feet of these barracks and it was believed that the water of this stream soon became contaminated. The water of two other streams was also found to contain comma bacilli. The method followed by the local sanitary commission in order to deal with these contaminated streams had at least the merit of originality. The infected stream was dammed or diverted temporarily and the dry bed of the river sprinkled thickly with quicklime, after which the water was allowed to return to its former course. It is not easy to see how this measure could have more than a momentary effect, but the local sanitary commission expressed great faith in its efficacy.

All classes of the population seem to have suffered more or less during the epidemic. The mortality among the troops was relatively serious and included the death of one general officer in command of the artillery in the Syrian army corps, who died from cholera after 24 hours' illness. He had only arrived from Constantinople the week before his death. Up to the end of January the Jewish quarter had almost escaped, although it is said to be one of the dirtiest and most insanitary quarters of the city, but at the end of that month this quarter was invaded, and there were much alarm and excitement among the Jewish inhabitants. It is noteworthy that in the present revival of the disease the cases have been most numerous among this section of the population.

As already stated, cholera disappeared from Alexandria towards the end of January and Egypt has apparently been free from the disease ever since. While the disease was still present in that city a small "explosion" of cholera occurred on board a steamer, the s.s. *Royal*, which left Alexandria for Malta on Jan. 11th. Two deaths were said to have occurred on board during the voyage and seven cases were landed from her and isolated after arrival at Malta. The infection was thought to have been carried on board in Alexandria by a stowaway.

The Hedjaz is believed to have been quite free from cholera since last October and the annual pilgrimage to Mecca and Medina has so far passed without the least sign of infectious disease among the pilgrims. The Haj of the present year has been rather less numerously attended than was that of last year. The fêtes of Bairam, in which the pilgrimage culminates, fell on March 9th, 10th, and 11th; and in spite of justifiable apprehensions to the contrary, they passed without any appearance of cholera or other disease. The return flow of pilgrims has now set in.

In the adjoining Arabian province of Assyr, whence only scanty and intermittent news is received, cholera was said

[1] THE LANCET, Jan 31st, 1903, p. 324.

to be still present at the beginning of February in the port of Confudah. A quarantine of ten days has been maintained throughout against the Assyr coast, though it has been removed from the Hedjaz and the Yemen coasts since Jan. 13th. So far as is known no case of cholera has occurred in the Yemen province since last November, but on Feb. 4th a death from a disease closely resembling cholera occurred on board a steamer, the s.s. *Gharbieh*, which had left Hodeidah, on the Yemen coast, some days before. The patient, a woman whose home was in Beirut, attended last year's pilgrimage. She embarked on the steamer at Hodeidah and shortly after developed symptoms which were clinically indistinguishable from those of cholera. The ship was sent to the Wells of Moses, where the patient died almost immediately after the ship's arrival. The results of a bacteriological examination were somewhat indefinite, but the case was regarded by the authorities as one of cholera.

Largely in consequence of this case, and from various other considerations, the Egyptian Sanitary, Maritime and Quarantine Board decided on March 3rd to declare the return pilgrimage *brut* (foul) with cholera. This involved a detention of 15 days at El Tor for all pilgrims returning north. The decision caused a good deal of dissatisfaction, as clean bills of health were still issued at the Hedjaz ports. Ultimately it was decided to wait till ten days had elapsed from the arrival at El Tor of the first batch of pilgrims and no sign of cholera having appeared in the interval, in the Hedjaz, on board the returning ships, or in the lazaret, the pilgrimage was declared "clean" on March 31st. Under the Venice Sanitary Convention of 1892 this still involves a detention of "three or four" days at Tor for ships with "pilgrims or other analogous masses" on board.

Constantinople, April 2nd.

## THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY meeting of the Council was held on April 2nd, the President, Sir HENRY G. HOWSE, being in the chair.

On the recommendation of the library committee it was resolved to sell certain sets of foreign periodicals for which the College has ceased to subscribe and which are seldom, or never, referred to.

The Council awarded the Jacksonian prize for the year 1902 to the author of the dissertation bearing the motto "*Vulnera Capitis.*" The President opened the envelope bearing this motto and found that the successful candidate was Mr. T. Crisp English, M.R.C.S., of St. George's Hospital. The subject of the dissertation was "Fracture of the Skull, its Consequences, Immediate and Remote, including Pathology and Treatment." An honorarium was also awarded to Mr. Louis B. Rawling, F.R.C.S., for the excellence of his essay on the same subject. It was resolved that the subject for the Jacksonian prize for the year 1904 should be "The Diagnosis and Treatment of such Affections of the Stomach as are amenable to Direct Surgical Interference."

The John Tomes prize was awarded to Mr. Kenneth Weldon Goadby.

Dr. A. M. Paterson of Liverpool and Dr. Arthur Robinson of King's College, London, were elected Hunterian professors.

The Council then proceeded to the election to the Fellowship of a Member of 20 years' standing and Sir Francis Henry Lovell, C.M.G., Dean of the London School of Tropical Medicine and late Surgeon-General of Trinidad, was chosen. His diploma of Membership was dated Nov. 14th, 1865.

The PRESIDENT suggested that as a considerable number of students who now claim exemption from the first examination of the Conjoint Board on the ground of having passed the preliminary scientific examination of the University of London receive their instruction in biology privately or at unrecognised schools, it should be referred to the court of examiners to consider and to report to the Council whether any modification is desirable in the regulation requiring candidates to produce a certificate of attendance on a course of lectures on biology at a recognised medical school. The suggestion was adopted.

A letter was read from the Clerk to the London County Council stating that the Council considers it desirable that post-mortem examinations in inquest cases of a special nature should be intrusted to specially skilled pathologists and expressing the hope that the Council of the College would assist it by suggesting, with a view to a selection being made, the names of well-qualified pathologists with experience of a medico-legal nature who would be prepared, if called upon by any of the London coroners, to make post-mortem examinations and to give evidence in special inquest cases at an inclusive fee of two guineas. The letter was referred to a committee to consider and to report.

## VITAL STATISTICS.

### HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8476 births and 4578 deaths were registered during the week ending April 4th. The annual rate of mortality in these towns, which had been 17·2, 17·0, and 16·2 per 1000 in the three preceding weeks, further declined last week to 15·8 per 1000. The death-rate in London was 15·7 per 1000, while in the 75 other large towns it averaged 15·9 per 1000. The lowest death-rates in these towns were 2·7 in Hornsey, 3·6 in Handsworth, 7·1 in Barrow-in-Furness, 8·1 in Burton-on-Trent, 9·6 in Brighton, 9·7 in Leyton, and 9·9 in East Ham; the highest rates were 19·7 in Bootle, 20·6 in Bury, 20·9 in Rochdale, 21·1 in Liverpool, 21·5 in Halifax, 21·8 in Wigan, 24·6 in Rotherham, and 26·8 in Sunderland. The 4578 deaths in these towns last week included 465 which were referred to the principal infectious diseases, against 484, 493, and 489 in the three preceding weeks; of these 465 deaths 141 resulted from measles, 132 from whooping-cough, 58 from diphtheria, 53 from diarrhœa, 39 from scarlet fever, 29 from "fever" (principally enteric), and 13 from small-pox. No death from any of these diseases was registered last week in Hornsey, Bournemouth, Handsworth, Smethwick, Derby, Wallasey, Bootle, Warrington, Barrow-in-Furness, Stockton-on-Tees, West Hartlepool, or Tynemouth; while the highest death-rates from the principal infectious diseases occurred in West Ham, Walthamstow, Hanley, St. Helens, Wigan, Burnley, Hull, Middlesbrough, and Sunderland. The greatest proportional mortality from measles was recorded in Tottenham, Wigan, Manchester, Salford, Burnley, Hull, and Swansea; from scarlet fever in Sunderland; from diphtheria in Hanley, Rochdale, Hull, and Middlesbrough; from whooping-cough in Croydon, Willesden, Walthamstow, Walsall, Coventry, Stockport, and Preston; from "fever" in Halifax; and from diarrhœa in South Shields. Six fatal cases of small-pox were registered in Liverpool, two in Bristol, two in Bury, and one each in Birkenhead, Manchester, and Burnley, but not one in any other of the 75 large towns. The number of small-pox cases under treatment in the Metropolitan Asylums hospitals, which had been seven, seven, and 11 on the three preceding Saturdays, had further risen to 13 on Saturday, April 4th; three new cases were admitted during last week, against two, two, and five in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 1735, against 1798, 1789, and 1756 at the end of the three preceding weeks; 205 new cases were admitted during the week, against 231, 220, and 213 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 258, 282, and 250 in the three preceding weeks, further declined last week to 238 and were 174 below the corrected average number. The causes of 44, or 1·0 per cent., of the deaths in the 76 large towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Portsmouth, Bristol, Nottingham, Bolton, Salford, Bradford, and in 45 other smaller towns; the largest proportions of uncertified deaths were registered in Willesden, Liverpool, Warrington, Sheffield, Blackburn, and South Shields.

### HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 19·7, 20·1, and 18·6 per 1000 in the three preceding weeks, further declined to 18·0 per 1000 during the week ending April 4th, but showed an excess of 2·2 per 1000 over the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 12·6 in Paisley and 13·6 in Aberdeen to 19·2 in Glasgow and 25·5 in Greenock. The 589

deaths in these towns included 25 which were referred to whooping-cough, 14 to diarrhœa, 12 to measles, four to "fever," one to scarlet fever, and one to diphtheria. In all 57 deaths resulted from these principal infectious diseases last week, against 67, 68, and 77 in the three preceding weeks. These 57 deaths were equal to an annual rate of 1·7 per 1000, which was 0·1 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of whooping-cough, which had been 28, 32, and 37 in the three preceding weeks, declined again last week to 25, of which 12 occurred in Glasgow, five in Dundee, three in Edinburgh, and three in Greenock. The deaths from diarrhœa, which had been 12, 14, and 17 in the three preceding weeks, declined again to 14 last week, and included six in Edinburgh, five in Glasgow, and three in Dundee. The fatal cases of measles, which had been 15, eight, and 12 in the three preceding weeks, were again 12 last week, and of these six were registered in Aberdeen, three in Glasgow, and three in Edinburgh. The deaths referred to different forms of "fever," which had been five in each of the two preceding weeks, declined to four last week and included three in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 117, 134, and 100 in the three preceding weeks, rose again last week to 121, but were 39 below the number in the corresponding period of last year. The causes of 34, or nearly 6 per cent., of the deaths registered in these eight towns last week were not certified.

### HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 26·6, 27·7, and 29·3 per 1000 in the three preceding weeks, declined again to 27·1 per 1000 during the week ending April 4th. During the past 13 weeks the death-rate has averaged 26·6 per 1000, the rates during the same period being 17·3 in London and 18·1 in Edinburgh. The 197 deaths of persons belonging to Dublin registered during the week under notice showed a decline of 16 from the number in the preceding week and included 15 which were referred to the principal infectious diseases, against ten, eight, and 18 in the three preceding weeks; of these, six resulted from diphtheria, two from scarlet fever, two from whooping-cough, two from "fever," two from diarrhœa, and one from small-pox, but not one from measles. These 15 deaths were equal to an annual rate of 2·1 per 1000, the death-rates last week from the same diseases being 2·0 in London and 2·1 in Edinburgh. The fatal cases of diphtheria, which had been two, three, and two in the three preceding weeks, rose again last week to six. The deaths from whooping-cough, which had been two, two, and six in the three preceding weeks, declined again to two last week. The fatal cases of "fever," which had been two, two, and three in the three preceding weeks, declined again last week to two. The mortality from small-pox, from scarlet fever, and from diarrhœa corresponded in each case with that recorded in the preceding week. The 197 deaths in Dublin last week included 28 of children under one year of age and 54 of persons aged 60 years and upwards; the deaths both of infants and of elderly persons showed a slight decrease from the numbers in the preceding week. Four inquest cases and seven deaths from violence were registered, and 83, or more than two-fifths, of the deaths occurred in public institutions. The causes of 10, or more than 5 per cent., of the deaths registered in Dublin last week were not certified.

## THE SERVICES.

### ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeon G. Welch to the *Admiralty*, reappointed on promotion.

The following Staff Surgeons have been promoted for conspicuous professional merit to the rank of Fleet Surgeon in His Majesty's Fleet:—Percy William Bassett-Smith and George Welch. Dated March 26th, 1903. The following Surgeons have been promoted for conspicuous professional merit to the rank of Staff Surgeon in His Majesty's Fleet:—Ernest Albert Shaw, Francis Herbert Aylen Clayton, Frederick James Abercrombie Dalton, and Edward Sutton. Dated March 26th, 1903. The promotion of Surgeon Clayton and Surgeon Sutton to Staff Surgeons is conditional on their passing the necessary qualifying examination.

### ROYAL ARMY MEDICAL CORPS.

The undermentioned officer, on relinquishing his temporary commission for service in South Africa, is granted the honorary rank of Lieutenant in the Army, with permission to wear the uniform of the corps, dated June 8th, 1902:—Temporary Lieutenant Clay.

### ARMY MEDICAL RESERVE OF OFFICERS.

Lieutenant James Bruce, Royal Army Medical Corps Volunteers, to be Surgeon-Lieutenant. Dated April 4th, 1903.

### VOLUNTEER CORPS.

*Royal Garrison Artillery (Volunteers):* 1st Banff: Surgeon-Major (Honorary Captain in the Army) F. W. Grant resigns his commission, with permission to retain his rank and to wear the uniform of the corps on retirement. Dated April 4th, 1903.

*Royal Engineers (Volunteers):* 1st Lanarkshire: Surgeon-Lieutenant J. H. Teacher to be Surgeon-Captain. Dated April 4th, 1903.

*Rifle:* 1st Volunteer Battalion the Northumberland Fusiliers: Surgeon-Captain J. P. Elliot to be Surgeon-Major. Dated April 4th, 1903.

### ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

The Glasgow Companies: Lieutenant R. Ramsey resigns his commission. Dated April 4th, 1903.

The Manchester Companies: Lieutenant F. D. Woolley to be Captain. Dated April 4th, 1903.

### VOLUNTEER INFANTRY BRIGADE.

Liverpool: Surgeon-Lieutenant-Colonel G. Westby, 2nd Volunteer Battalion the King's (Liverpool Regiment), to be Senior Medical Officer of the Brigade. Dated April 4th, 1903.

### VOLUNTEER INFANTRY BRIGADE BEARER COMPANY.

Samuel Herbert House to be Surgeon-Lieutenant. Dated March 28th, 1903. Yorkshire: Arthur Tinley Sissons to be Lieutenant. Dated April 4th, 1903.

### WAR MORTALITY IN SOUTH AFRICA.

An elaborate and important paper on the Mortality Experience of the Imperial Forces during the War in South Africa was read on March 30th before the Institute of Actuaries. The authors are Mr. Frederick Schooling and Mr. Edward A. Rusher, Fellows of the institute. The paper set forth the results of an investigation of a very exhaustive nature which necessarily involved a very large amount of labour and care. These results are thrown into the form of some highly interesting and instructive statistical tables accompanied by explanatory notes and comments, the whole forming a paper which requires, and will well repay, careful perusal. It is highly satisfactory to find that the annual death-rates in the South African war "were considerably below those deduced from the mortality of the German army in the Franco-German war and compared even more favourably with the death-rates experienced by the Northern army during the American Civil war." The authors of the paper stated in conclusion "that it had been brought home to them that the care of the sick and wounded was exceptionally good. The medical staff, though severely tested, were equal to all emergencies." In the discussion which followed the reading of the paper Colonel Wilson, R.A.M.C., remarked that the death-rate from disease was far less than in the Zulu war and the longer troops were in South Africa the more they became acclimatised and proof against disease.

### PROMOTION FOR PROFESSIONAL MERIT IN THE ROYAL NAVY MEDICAL SERVICE.

We were rejoiced to notice an announcement in last week's *Gazette* of the names of several officers of the Royal Navy Medical Service who had been promoted "for conspicuous professional merit." We need not remind the readers of THE LANCET that we have for years past contended for the principle that the exhibition of any superior professional merit on the part of medical officers belonging to the public medical services should be recognised and rewarded. This would seem to be so obvious that it should be unnecessary even to state it. But hitherto the Admiralty and the War Office authorities have not taken this view; we consequently hail the recent announcement as the earnest of a new and most desirable departure on their part. It seems a strange anomaly that

almost the only direction in which a man could not look forward for a successful career in the public service was the special occupation on which he was engaged and for which the State required his services.

### THE SOLDIERS' CONVALESCENT HOME, COMBE DOWN, BATH.

This convalescent home having been closed there was a final meeting of the subscribers at the Guildhall, Bath, on March 31st, when General Sir John McQueen presided. The report stated that the home was open from February, 1900, until December, 1902, during which time 240 soldiers were admitted. A large portion of these suffered from rheumatism and derived great benefit from the use of the baths, generously given free by the corporation. The committee recorded the generally excellent and soldierly behaviour of the patients and added that no complaint had been received against any of them. The financial statement showed that the subscriptions amounted to £3094, including £300 from the Lord Mayor of London's Transvaal War Fund and £200 from the Soldiers' and Sailors' Help Society. A balance of £54 remained in hand and it was decided to give this sum to the Royal United Hospital, Bath.

# Correspondence.

"Audi alteram partem."

## THE RELIEF OF PARALYTIC DISTENSION OF THE BOWEL IN OPERATING FOR INTESTINAL OBSTRUCTION.

*To the Editors of* THE LANCET.

SIRS,—After the removal of the obstruction in mechanical obstruction of the small intestine, such as the division of a band or the release of a coil from some aperture, if the intestines are greatly distended and as a result partly paralysed and partly obstructed by the very sharp bends of the overladen coils and are therefore not in a condition to empty themselves through the seat of relieved obstruction, there can be no doubt that it is a good plan mechanically to empty them, if this can be done without greatly adding to the risk of the operation. But can this be done by the usual method now adopted? This method may be briefly described as drainage of the intestine through one opening above the seat of relieved obstruction, carried out after the administration of the anæsthetic has ceased. In the practice of some surgeons, a loop of distended intestine has been drawn out of the wound, isolated by towels, and incised, and the abdomen has been kneaded in order to force the fluid along the coils up to the opening; or in the practice of other surgeons, a Paul's glass drainage-tube has been fixed into the bowel in the wound.

I see no reason why the contents of the small intestines should pass out more readily through such an opening than through the seat of relieved obstruction. As the small intestines lie within the abdominal cavity it is impossible to drain distended small intestine by making one opening, for the coils are bent at short intervals, and when bent they offer an obstruction to the mere mechanical flow of their contents, so that an opening made in one coil will only evacuate a very short length of bowel. If anyone doubts this let him distend the small intestines still attached to the mesentery in the post-mortem room and then try to empty them by making a single incision. Surgeons are so apt to speak of drainage of the intestines as if they were dealing with the whole length of small intestine cut free from the mesentery and suspended or laid on the level as one long straight tube with an opening at the lower end. Only in such a condition is mechanical drainage, in which the fluid simply flows away by gravitation, possible. I have seem the uselessness of a single puncture in draining more than a coil or two of bowel attached to the mesentery when with several coils outside the abdomen, in operating for peritonitis with great distension of the coils, I have endeavoured to evacuate the contents of the bowel. I have only succeeded in evacuating a foot or two of bowel, even of gas, because the bowel is blocked at its bends, and the more overladen the more obstructed it is. We may succeed in evacuating the gas in the distended intestines by making punctures in various coils, but they have to be very numerous, and a fine cannula is very apt to get blocked with fæcal matter and to fail even to evacuate gas; or we may make a single incision and force the contents of the intestine towards the opening by manipulation with our fingers. I shall refer to this latter method more fully again. Because the bowels are more or less paralysed and obstructed by distension, that is no reason why they should empty themselves any better through an external opening than into the bowel beyond the seat of relieved obstruction. It has been argued that they can do so more readily through an external opening, because if they empty themselves into the intestine below the seat of relieved obstruction within the abdomen they do so into intestine under pressure of surrounding coils and the abdominal wall, and therefore with great difficulty. But an external opening can only mechanically drain a coil or two, and these empty coils lie within the abdomen also subject to the pressure of surrounding coils and of the abdominal wall, and it is into these empty coils that all those above will have to empty themselves before their contents can reach the external opening; thus the condition will be the same as if the distended bowel emptied itself into the bowel below the seat of obstruction without any external opening at all.

I know that some surgeons claim that they have greatly reduced the mortality of operation for intestinal obstruction by draining the bowel as well as relieving the mechanical obstruction, but it is for them to show in what manner such an opening can, by any possibility, relieve the overladen coils. It has been recommended that after the bowel is incised the abdomen should be kneaded towards the opening to evacuate the contents of the intestine. But how can such kneading evacuate the contents of a complicated series of bent tubes such as the small intestines consist of. It may possibly stimulate peristalsis if the bowel is capable of it, but it cannot force out the contents. It has also been recommended that we should empty the distended coils by pushing a long rubber tube into them through an incision in the bowel, but how can we expect to succeed in passing such a tube through coil after coil of kinked, overladen small intestine. It is interesting to note that the recommendation is made because it is recognised that a single puncture will not empty such coils, but I fail to see how a rubber tube passed up through an opening into the bowel will do so. Indeed, I have proved in the post-mortem room how instead of passing from coil to coil the rubber tube simply coils up when it meets with the obstruction of the bend, as one might expect.

It is not enough for surgeons to say that by adopting this method of drainage of the intestines after the relief of the mechanical obstruction they have greatly reduced the mortality of the operation to prove its utility. The mortality of the operation may have been reduced by earlier operating and improved methods which do not include this drainage. Travers in his book on "Injuries of the Intestine and Hernia," published in 1812 (p. 249) lays stress on the need for evacuating the bowel with purgatives and enemata after operation for strangulated hernia, and he says that patients seldom recover without venesection. In fact, he attributes to purgatives and venesection as adjuncts to the operation for strangulated hernia just the importance which most surgeons now attach to this unreasonable method of intestinal drainage.

There is only one method with which I am acquainted by which we can really empty distended small intestine, and that is to force the contents out of an incision in the bowel by manipulation of the coils, a method suggested by Maylard of Glasgow.[1] I find that even by this method it is not easy really to empty the distended coils of liquid and gas though we follow up the manipulation of the fingers of one hand forcing the fluid onwards by the constriction of the gut behind with the fingers of the other hand to prevent the contents running backwards, for there is a very strong tendency to regurgitation. Possibly this method may increase the shock of the operation and I should only employ it in cases of greatly distended intestine, in cases of peritonitis, or after removal of a mechanical obstruction; but if it is really necessary to empty the bowel mechanically I know of no other reasonable method.

Maylard himself says that he has seen no harm from this manipulation. I should say that if the bowel empties itself through an external opening made for drainage after a

[1] Brit. Med. Jour., 1899, vol. i., p. 842.

mechanical obstruction has been removed it would as readily have emptied itself into the intestine below the seat of relieved obstruction. If a portion of bowel has been very severely nipped it may be paralysed and unable to take on peristaltic action, even though the intestine above is not too distended to force the contents down to it, and it has been taught that this very limited paralysis may cause persistent obstruction after herniotomy. But, granting that the bowel so damaged may be paralysed, is it conceivable that the peristaltic wave in the proximal side cannot force the contents through a few inches of inert gut? It seems almost unnecessary to say that the above remarks apply only to distension of the small intestine. Everyone knows how readily distended large bowel may be emptied by a single incision.

I am, Sirs, yours faithfully,

CHARLES A. MORTON, F.R.C.S. Eng.,
Professor of Surgery in University College, Bristol; Surgeon to the Bristol General Hospital and the Bristol Royal Hospital for Sick Children and Women.

April 4th, 1903.

## HÆMOGLOBINURIA OF TRAUMATIC ORIGIN.

*To the Editors of* THE LANCET.

SIRS,—In view of the diversity of opinion elicited during the discussion of a paper on the above subject read before the Royal Medical and Chirurgical Society on March 24th and reported in THE LANCET of March 28th, p. 885, the following case may prove interesting to some of your readers. It is not intended to claim that the question as to the relationship between trauma and the subsequent occurrence of hæmoglobinuria is settled by what follows, but I think that the account given will show what antecedent conditions may be followed by hæmoglobinuria in the same individual at different times, whose general surroundings as to living and health remain practically identical.

The patient, aged 20 years, a young farmer, was on the afternoon of Feb. 14th, 1903, trying to separate a young boar from several female swine. The animal attacked him, knocked him down, and inflicted a severe wound through two thicknesses of clothing on the outside of the right knee-joint, breaking off a small fragment from the head of the fibula in the passage of the tusk through the skin, &c. The wound was immediately attended to, cleansed, and completely closed, the limb being immobilised and the patient confined to bed. The urine passed on the same evening was almost black and on examination revealed the presence of hæmoglobin. Albumin was also present. For several days this state of things continued. The leg also was considerably ecchymosed and a large effusion into the knee-joint occurred as well. (I may here say that no carbolic acid was used in the washing of the wound or subsequent dressings.) The case made steady progress until March 14th, when the patient took influenza from another member of the family and on the following day the hæmoglobin made its appearance once more after at least three weeks' absence. On March 7th, 1901, during the small-pox epidemic in Glasgow, revaccination was popular in Edinburgh and its neighbourhood, and among others the subject of this letter was revaccinated by me. Although the oldest of the family and enjoying perfect health at the time he was much more disturbed by the operation than were the others, and a day or two after his urine again showed blood colour with as usual a large deposit of urates and albumin. Finally, in October, 1899, the patient was engaged carrying a gun and a heavy gamebag the greater part of a day and he perspired very freely as the result of severe physical exertion. Again do we find his urine exhibiting the same blood colour, which persisted for a few days, diminished gradually and finally disappeared.

Here, then, is a case in which four distinct attacks of hæmoglobinuria occur, two of which follow traumatism, one succeeds severe physical exertion, and the fourth accompanies an attack of febrile catarrh. The general health on all occasions may be considered to have been exceptionally good. The patient, however, is markedly emotional, sensitive, and high strung, and his family distinctly neurotic. We may, therefore, fairly premise mental excitement as having been present more or less on each occasion. The question comes to be—What connexion, direct or indirect, existed between the injuries, the severe physical exertion, and the infection on the one hand and the hæmoglobinuria on the other? Hæmolysis is, of course, a normal process and is doubtless controlled by the nervous system, which in general is able to prevent the solution of hæmoglobin in the blood and its secretion in the urine. Is it that this control is in abeyance during the attack of hæmoglobinuria? The disease is not a very common one, while injuries, severe mental and physical exertion, and infection are frequent. What is the deciding factor? With the case I have detailed above fresh in my mind and after considerable scrutiny of theories and facts I am inclined to agree with Blanc, an author quoted by Osler, as saying that the condition is distinctly nervous in origin.

I am, Sirs, yours faithfully,

WILLIAM MUIR, M.D., C.M. Glasg.

Davidson's Mains, N.B., March 30th, 1903.

## THE RISE OF BLOOD PRESSURE IN LATER LIFE.

*To the Editors of* THE LANCET.

SIRS,—Under the above heading Dr. Harry Campbell, in THE LANCET of March 21st, p. 835, has again written a letter containing many suggestions of great interest and importance. Perhaps you will allow me to make a few additional observations which bear more or less directly upon the subject under discussion. Dr. Campbell states that "except in cases of decided cardiac inadequacy a general hypertonus of the systemic arterioles necessarily leads to augmentation of the systemic arterial pressure." If by a "general hypertonus" Dr. Campbell means to imply that there is a generalised vaso-constriction which simultaneously involves the arteries and arterioles of the entire vascular system, then I agree with him that the blood pressure would be enormously raised. But I cannot conceive that such a condition of matters is possible either physiologically or pathologically. When I referred to the existence of a "general arteriole contraction" in certain cases I did not intend to convey the idea that I believed the deep-seated arterioles to be also involved in the spasm. In such instances as I have mentioned, where the larger superficial arteries are excessively contracted, the skin is pale and cold, and the whole body is shrunken, there must sometimes be a very widespread vaso-constriction—as extensive as ever occurs—and such a condition may, I submit, be correctly described as a general arterial hypertonus. In any case of this kind, where there is obvious contraction of the superficial arterioles, there is no reason to think that the deep-seated arterioles are simultaneously constricted, and should the blood pressure be high it cannot be assumed that this is the explanation. In such circumstances, however, the pressure is commonly low, as measured in the brachial or radial artery, and the obvious inference is that the blood is finding its way from the arteries into the veins by some other channel than by way of the superficial arterioles. In cases of severe abdominal pain, shock, &c., I agree with Dr. Campbell in believing that there is a marked *hypotonus* of the arterioles of the splanchnic area. Sir Lauder Brunton has drawn attention to another important channel by which the blood may rush freely through into the veins in spite of widespread contraction of the superficial arterioles. He considers that the arterioles of the muscles may often be the seat of dilatation and these vessels are so large that the blood is able to escape into the veins as rapidly as through the vessels of the splanchnic and skin areas together. There are also many cases associated with hypertonus of the superficial arteries and arterioles where the blood pressure is found to be considerably raised. While I do not deny that this rise of pressure might be due to a simultaneous hypertonus of the arterioles of the splanchnic and muscle areas, yet I am disposed to think that by far the most probable explanation is that there is some coincident capillary obstruction. I believe obstruction of the capillary area due to various toxins circulating in the blood to be the commonest and most persistent cause of high blood pressure; a constriction of the entire arteriole field—involving the vessels of the skin, muscles, and intestine simultaneously—would create a peripheral resistance which no ordinary heart could overcome.

With regard to the suppression of urine in puerperal eclampsia, which occurs in spite of the increasing blood pressure in the systemic arteries, Dr. Campbell contends that it results from "a grave perversion in the functions of the kidneys owing to the rush of toxins towards the renal tubules and that there is no proof that the intrarenal arteries are not dilated." While there is no absolute proof,

still the results of therapeutic treatment go a long way to support my view that the toxins of eclampsia act as powerful vaso-constrictors in the same manner as toxic doses of digitalis, and in this way ultimately abolish the secretion of urine. The re-establishment of diuresis follows precisely upon the administration of any sufficiently powerful vaso-dilator remedy which fully and permanently relaxes the arterioles. Such remedies would not act efficiently on damaged kidneys with their tubules blocked up by toxins and their products. In some fatal cases of eclampsia, however, I think the renal tubules may be obstructed in this way, hence the failure of remedies to re-establish the secretion of urine. The action of thyroid extract—a specific vaso-dilator—in re-establishing the urinary secretion in eclampsia is a strong proof that a spasm of the renal arterioles is mainly responsible for the suppression of the secretion. Consider some of the features of a typical case of eclampsia. The skin is cold and dry owing to a general hypertonus of the superficial arteries and arterioles, the blood pressure is very high, and the secretion of urine is notably diminished. Now, by converting this type of circulation, which is quite similar to that of a myxœdematous person, into the type which is characteristic of a well-marked case of Graves's disease—i.e., fully relaxed arteries and arterioles, with a flushed moist skin and a lowered blood pressure—the re-establishment of the secretion of urine is secured. Sufficiently large doses of thyroid extract will rapidly bring about this alteration; a full grain of morphine given hypodermically will do the same thing, and large saline infusions will produce precisely similar circulatory changes both in regard to vaso-dilatation and lowering of the blood pressure.

Until we possess instruments which are capable of measuring the blood pressure in a much more precise and certain manner than those at present in use, the results of our observations will not always be in agreement. Still it is to be hoped that many of the apparently contradictory opinions which have been expressed by different observers in the criticism of Professor T. Clifford Allbutt's most stimulating paper will ultimately be found to be capable of reconciliation.

I am, Sirs, yours faithfully,

Edinburgh, March 28th, 1903. H. OLIPHANT NICHOLSON.

## THE THEORIES OF IMMUNITY.

*To the Editors of* THE LANCET.

SIRS,—Although your editorial remarks in THE LANCET of April 4th, p. 978, afford a sufficient answer to Dr. Hugh Woods's letter on the above subject the fact that you have printed that gentleman's communication leads me to the conclusion that you consider the objections he has raised of sufficient importance to warrant discussion. Dr. Woods's position seems to be as follows: (1) he has failed to understand Dr. Grünbaum's lectures on the Theories of Immunity; (2) he believes that other medical men are in a similar plight; and (3) he therefore considers these theories (*a*) throw no light on the subject of immunity generally and (*b*) are of no use to the average medical man.

With regard to the first two points they may, I think, be conceded, but it is doubtful if Dr. Woods's statement of them is "useful information to the general practitioner." With regard to the third point, may I venture to bring forward the following observations? The nomenclature may be clumsy and often more discordant than the experimental results of the various observers. Simplification and harmonisation will doubtless in time be attained, and in spite of existing defects a correlation between certain clinical and experimental facts has been shown. This, at any rate, is the opinion of many bacteriologists who perhaps are better judges than one who professes to be unable to understand what all the talking is about. The value, however, of an exposition such as Dr. Grünbaum's to the average medical man is a matter perhaps of more importance here and now. Bacteriology is a science in which every year increasing numbers of medical men take an active interest; and as it is impossible for most of them to read original communications, occasional surveys of what the leaders of science are thinking and doing must be to them of ever-increasing importance. At any time some widespread practical application of experimental work may be suggested; the general practitioner will have to carry it out and I feel convinced that an acquaintance with the trend of scientific thought and experiment will enable him to do this all the more intelligently and safely. The private soldier must have some knowledge of modern theories of tactics and strategy or our battles of the future will not be won. Indeed, it may be said that a knowledge of the progress of the ancillary sciences is of far more importance to the average man than a smattering of special therapeutics or diagnosis, and that expositions such as that of Dr. Grünbaum may more advantageously occupy the columns of a journal whose readers are mainly in general practice than discussions on minute points in (say) laryngology or dermatology. Few of us have no time to read *anything* and the best reading is not always the easiest or the most immediately applicable to our every-day practice.

I am, Sirs, yours faithfully,

J. M. FORTESCUE-BRICKDALE, M.A., M.D. Oxon.

Clifton, Bristol, April 3rd, 1903.

*To the Editors of* THE LANCET.

SIRS,—Dr. Woods's pathetic bleating over the limitations of his own imagination is quite too discouraging to those who welcome the classic work of Ehrlich as full of presage and of promise in the elucidation of the difficult problem of the mechanism of immunity. While I agree with Dr. Woods that the theories of immunity have been unnecessarily complicated by some interpreters who, beguiled by the dear delight of giving birth to a new word, have baptised anew processes already over-burdened with names, still it by no means follows that the measure of one man's understanding necessarily delimits the value of a theory which transcends his particular mental acumen.

Because in our studies in immunity we are still in the theory stage, and because our charts of that still unplumbed sea may at the present moment be too fanciful and too complex, are we on that account to tear them up and to cast them overboard? We cannot thus airily drop our pilot Ehrlich who

> "Was the first that ever burst
> Into that silent sea."

Rather should we welcome any theory calculated to explain the inner workings of nature in her contest against disease, so that we may the more heartily "throw ourselves into the struggle for life and health on the side of natural resistance," proclaiming more confidently the glorious gospel of prophylaxis, and heralding the day, not so far distant now, when we shall "spend less in combating existing disease, spend more in increasing the capacity to live."

I for one, Sirs, gladly testify my indebtedness to you in that you have provided your readers with the admirable lectures of Dr. Welch and Dr. Grünbaum—lectures which when we study them compel us to face new problems and to think in new categories.

I am, Sirs, yours faithfully,

Kirkcaldy, April 5th, 1903. WILLIAM ELMSLIE HENDERSON.

*To the Editors of* THE LANCET.

SIRS,—Allow me very heartily to indorse Dr. Hugh Woods's letter. If Ehrlich is able to produce any evidence proving the actual existence of cytophiles, haptophores, and the rest by all means let us have it. In that case he will have done valuable service to science and anticipated discovery by many years. Otherwise his theory is a mere plunge into mythology. It is fiction of the most distressing type and altogether inexcusable in that, while it does not afford amusement, it is sure to hinder real scientific work. As was well said by Hobbes: "When men have once acquiesced in untrue opinions and registered them as authenticated records in their minds it is no less impossible to speak intelligibly to such men than to write legibly on a paper already scribbled over."

Twenty years ago the question as to whether characters acquired by parents are transmissible to offspring came before the scientific world. The known truth that offspring are derived from only a single cell from each parent seemed to indicate non-transmission, an opinion which was amply confirmed by observation. The data were so simple and convincing that probably all discussion on the question would have ended in a year or two, but Ehrlich's ingenious countryman, Weismann, thereupon propounded a theory of heredity closely analogous to that which Dr. A. S. F. Grünbaum has so lucidly and ruthlessly and uselessly explained. For cytophiles and haptophores we had determinants and biophors and so forth. The whole question was immediately obscured. To this day men are still discussing

biophors and determinants and labouring under the delusion that the doctrine of non-transmission depends on their imagined existence.

I am, Sirs, yours faithfully,

Southsea, April 7th, 1903. G. ARCHDALL REID.

*To the Editors of* THE LANCET.

SIRS,—Dr. H. Woods has much relieved my mind, for apparently I am in excellent company when I confess that I really cannot understand Dr. Grünbaum's lectures. May I suggest that in deference to the ignorance of those of us whose chemistry is 30 years old, some member of your staff should kindly supply an explanation of the rather tantalising diagram and formulæ which old fogies such as myself would gladly be able to comprehend.

I am, Sirs, yours faithfully,

April 3rd, 1903. B.SC. 1868, M.B. 1872.

## DEGREES FOR MEDICAL STUDENTS.

*To the Editors of* THE LANCET.

SIRS,—There can be no doubt, from the various suggestions made and the endless schemes inaugurated from time to time, that the desire for a medical degree in the profession is great and widespread. But the only value of a degree to the individual and to the public is its *appreciation*, dependent upon the time, trouble, and ability required to obtain it. The moment these are lessened to such an extent is the degree *depreciated*. Those who legitimately obtain the degree through the *front door* of the university are required: (1) to show their general knowledge in school subjects—*matriculation*; (2) to pass a science examination—*the preliminary scientific*; (3) to pass in preliminary medical subjects, anatomy, and physiology—the first M.B.; (4) then to proceed to practical subjects, medicine, surgery, and obstetrics—the second M.B.; and (5) finally, by a further examination they obtain the much coveted M.D. But those who are so continually striving to obtain this seal through the *back door* of the university think they should, by reason of their excellent preliminary education through another channel, be permitted to present themselves for the final examination alone for their degree.

Well, there is much to be said for knowledge *qud* knowledge, however or wherever obtained and irrespective of the preceding education, training, and examination. But suppose a university grant the prayer of these students, what happens? Surely no university would expect any other student—unless a candidate for honours—to be such a fool as to present himself as a candidate for the four previous examinations for the M.D. degree when he could obtain it by passing the No. 5 examination alone. It would mean that the university would have to cancel its four examinations for its curriculum and merely to arrange one examination for its degree for all-comers. And when this was accomplished what would be the value of its degree?—less than the parchment presented with it. The difficulty of this degree question is a real one and can be met by the teachers at our medical schools pointing out to each individual student more earnestly than they do the importance of a degree in the eyes of the public, and the only way legitimately to obtain it, at the threshold of his medical life. This heart-burning grievance would then die a natural death. Much help might also accrue were the importance of a medical degree to the medical student kept before the attention of the headmasters of our schools.

I am, Sirs, yours faithfully,

Rugby, March 30th, 1903. CLEMENT DUKES.

## THE EFFECT OF EXERCISE ON THE TEMPERATURE IN TUBERCULOSIS AND IN HEALTH.

*To the Editors of* THE LANCET.

SIRS,—Dr. F. W. Burton-Fanning and Dr. S. G. Champion are to be congratulated on their investigations recorded in THE LANCET of March 28th, p. 856. Their results must compel further observations and, in the event of confirmation, a revision of sanatorium routine. In the next issue of the *Journal of Balneology and Climatology* there will appear a paper which I wrote several weeks ago drawing attention to the need for scientific *clinical* observations on the effect of exercise upon the temperature of the tuberculous and the healthy. It is satisfactory to find the work so admirably done. I have long held that the positive value of exercise in the treatment of tuberculosis is overlooked nowadays. The tendency in sanatoriums is to harass patients with routine, to pursue them with thermometers, and to raise in the minds of patients and attendants a horror of exercise and a reverence for rest. Whatever may be the mysterious "scientific" grounds on which exercise in sanatoriums is "graduated" there can be little doubt that a definite guide is wanted and that hitherto undue importance has been given to the thermometer. For centuries common experience has proved that phthisis is curable by means which include active exercise far away from thermometers and other mentally disturbing influences; and in the paper referred to I give quotations from forgotten authors to support this contention. The paper of Dr. Burton-Fanning and Dr. Champion will, I trust, help us to cast off Teutonic influence and be guided by common sense and common experience as well as by our own scientific observations.

I am, Sirs, yours faithfully,

H. LAING GORDON, M.D. Edin.

Florence, March 31st, 1903.

## OSLER'S PRACTICE OF MEDICINE, FIFTH EDITION: AN EXPLANATION.

*To the Editors of* THE LANCET.

SIRS,—May I ask the courtesy of your pages in explanation of the premature appearance of a new edition of my text-book? To justify the confidence which the profession has shown in the work I have tried to make each edition a faithful exponent of the medicine of the day. I had hoped to be able to follow the plan of a triennial issue, but unfortunately, the fourth edition was not copyrighted in Great Britain, and in December, 1901, shortly after its publication by Kimpton and Company, an edition—*more Americano*—was published by Pentland. He was quite within his rights—quite as much so as the American publishers who, for many years, battened and fattened on the brains of English authors. That Mr. Pentland should have issued the edition so promptly—in six or eight weeks, I believe—and that he should have reduced the price from 24*s.* to 18*s.* showed that he had bettered the instruction of his teachers on this side of the water. To obtain copyright in Great Britain a new fifth edition has had to be issued. I regret the mistake that has disturbed the normal process of triennial parturition, but the circumstances justify what Rabelais calls "the pretty perquisite of a superfœtation."

I am, Sirs, yours faithfully,

Baltimore, March 21st, 1903. WM. OSLER.

## GLASGOW AND WEST OF SCOTLAND COÖPERATION OF TRAINED NURSES.

*To the Editors of* THE LANCET.

SIRS,—Kindly grant me space to reply to Dr. David Newman's letter in THE LANCET of March 28th, p. 921. The new constitution, which had not previously been circulated amongst the members, was neither read nor explained to the annual meeting, which was therefore asked to adopt it with shut eyes, and the result was that an amendment for delay was proposed and, although strenuously opposed by the executive, supported by the votes of their officials, was carried. Yet Dr. Newman's letter bears that the constitution was "submitted" and that delay was "agreed to." Some weeks later explanations of the constitution, which were, as above stated, refused by the executive to a public meeting partly composed of business men, were made privately to four of the 168 nurses.

At the annual meeting I pointed out, in the presence of the coöperation's solicitor, that the effect of the new constitution, according to Scots law, was to put the nurses in the position of "servants" and so to render them liable to dismissal without any reason, without any character or reference, and without any share in the coöperation's funds. The truth of that statement the solicitor did not deny, yet Dr. Newman says that the rights of the nurses have in no way been altered. The "comma" in Rule 2, Clause (*o*), to which you refer does not affect the law on the subject of "servants," but even if it did Rule 5, to which I direct your and Dr. Newman's attention, provides that in the event of the co-operation being wound up the funds are *not* to be distributed

amongst the nurses but are to be given to some other similar institution. Dr. Newman omits to mention that the nurses who at the annual meeting voted for delay in adopting the constitution subsequently made a written apology to the executive for doing so. Will he disclose the terms of that apology and whether it was made voluntarily? As the nurses had a right to vote as they chose no apology was necessary, and if the apology was compulsory it throws light upon the "unanimity" with which we are told the constitution was latterly adopted. It seems strange that Dr. Newman should praise so highly an executive of which he is chairman and also that he should do so in THE LANCET instead of in the nursing journals which at the time dealt fully with the questions at issue from the nurses' standpoint.

In conclusion, as I do not wish to trespass further upon your space, I would invite the executive, if my statements are untrue, to deny them. Thanking you for your courtesy in inserting this reply.

I am, Sirs, yours faithfully,

JOHN STEWART BANNATYNE.

Kelvinside N., Glasgow, April 4th, 1903.

## RECENT ACTS AFFECTING THE COMPENSATION OF WORKMEN FOR INJURY.

*To the Editors of* THE LANCET.

SIRS,—Like Mr. W. J. Townsend Barker, who writes in THE LANCET of March 21st, p. 834, I also think the action of insurance companies in regard to such working of the Workmen's Compensation Act as he describes is an attempt to exploit the members of the medical profession. Two years ago I used to have brought to me, as house surgeon in a general hospital, similar certificates to the one Mr. Barker has transcribed but which were more detailed. The patients who brought them had been led by their employers to expect that I should fill them up for nothing. From the beginning I made myself acquainted with the text of the Act, noting particularly: "Section 2 (2): Notice in respect of an injury under this Act ..... shall state *in ordinary language* the cause of the injury"; and "First Schedule (3): When a workmen has given notice of an accident he shall, *if so required by the employer*, submit himself for examination by a duly qualified medical *practitioner provided and paid by the employer.*" (The italics in both quotations are mine.) Then I explained to each patient that his employer (or the insurance company acting for the employer) could not legally demand a medical certificate from him, at his own expense, in order to his getting compensation, and that if the employer insisted upon having a medical certificate the Act said that he must pay for it himself. In the end some of the patients obtained compensation without the certificates at all, while others had them filled up at the employer's charges.

I am, Sirs, yours faithfully,

March 28th, 1903. D. M. MACKAY, M.B., C.M. Edin.

## THE MEANING OF URIC ACID AND THE URATES.

*To the Editors of* THE LANCET.

SIRS,—As the publication in THE LANCET of Jan. 31st, p. 288, of Professor Woods-Hutchinson's paper on the Meaning of Uric Acid and the Urates appears to me to be an event of importance in relation to clinical medicine, I ask your permission to refer to that subject before it passes from the notice of your readers, and much as one naturally shrinks from referring to one's own personal experiences I think that, in the circumstances, such a feeling should not be allowed to prevail.

Some 20 years ago I had been declining in health for five years with symptoms, slowly but steadily increasing in frequency and severity, of painful enlargement of the articular ends of bones, more especially of those of the hands and feet, with periosteal inflammation of parts subjected to any kind of violence, such, for example, as the phalanges of the left hand struck in the act of percussion, migraines, decline of appetite and of digestive power, together with excretion of uric acid steadily increasing in frequency till it became a matter of daily occurrence. During the latter three years of that period I sought the advice of the most distinguished of my friends in the profession and strictly following their injunctions I steadily diminished the amount of nitrogenous food, and more especially of meat, until during the last 12 months of the period referred to not a shred of butcher's meat passed my lips and but little of either chicken or fish. In the meantime I plied myself with recognised remedies such as moderate daily potions of Friedrichshalle and Hunyadi waters, alkaline medicines, and occasional doses of calomel or blue pill. My condition, however, went from bad to worse until, after a period of exceptional mental and physical fatigue, I suffered within six weeks two accesses of what I presume would now be called appendicitis. During the progress of convalescence from the second attack I resolved to exercise the courage of opinions which had long been maturing and to do the exact opposite in the way of *régime* of what I had been taught and told to do. As soon as possible I placed myself upon a dietary which might be called of the strictest diabetic type and in two or three weeks I found myself in the enjoyment of a state of health and vigour that I had not known for years and which, I am thankful to say, has been maintained under similar conditions of diet to the present day, with conspicuous absence of all the painful symptoms from which I previously suffered. In the light of my experience I completely revolutionised the treatment of patients suffering from similar and allied ailments who came under my care and for their use formulated a dietary of the kind which had been of service to myself. That dietary and the methods of pharmaceutic treatment which I then adopted for myself and others have now been followed for about 20 years with what I may perhaps be allowed to characterise as conspicuous success. My experience, which has thus borne the brunt of a prolonged test in a variety of circumstances, is, therefore, entirely in harmony with the views of Professor Woods-Hutchinson and has brought me on purely clinical grounds to conclusions identical with those to which he gives expression.

It may, however, be interesting to inquire whether, in addition to the commonly recognised symptoms of a so-called lithæmic state, there is to be found any condition common to its numerous developments which would give a clue to the source of the powerful toxic agents to which it may be traced. I have now closely observed many hundreds of such cases and believe myself to be in a position to say that a pathognomonic indication is the frequent, and sometimes prolonged or even permanent, deficiency of biliary colouring matter in the evacuations, together with a more or less acid reaction and other evidences of fermentative putrefaction. It is further to be noted that in proportion to the accentuation of that condition will, in the main, be the severity of the incidence of toxic effects whether on the skin, joints, bones, mucous membranes, or other tissues. The decline of the biliary pigmentation of the evacuations referred to and the accompanying changes would appear to be due to interference in various degrees with the patency of the common bile-duct. That condition, where not attributable to organic stricture or obstruction by a calculus, is caused by the extension of a gastric or gastro-intestinal catarrh and entails the following results: provision of abnormal and inefficient gastric juices, the admixture with the food of mucus depraved in quality and excessive in quantity, deficient admixture of the hepatic and pancreatic juices with the chyme in its passage through the duodenum, and, finally, decomposition of the contents of the stomach and bowel and more especially of those which are capable of undergoing the process of fermentation—namely, carbohydrates, fruits, and wines.

The worst cases are those in which absorption of toxins from the rectum is encouraged by the fluid state of the evacuations maintained either by the catarrhal state of the intestinal tract or by the habitual ingestion of aperients. If the facts themselves and their relation to each other be such as I have suggested, it follows that catarrh of the digestive tract, limited or extensive, as the case may be, is the main, if not exclusive, pathological basis of the numerous family of ailments which owe their origin to the state which is commonly regarded as uric acid toxæmia. Of that family perhaps the most important group is that which comprises a large proportion of the affections of the circulatory organs.

In THE LANCET of March 21st, 1896, p. 755, there appeared in your columns a paper of mine entitled "Self-poisoning and Heart Disease," in which I expressed the opinion that at least 90 per cent. of cardio-vascular affections

are attributable to the gastro-intestinal condition to which I have referred and associated with one or more of the specific developments of the gouty and rheumatic diatheses and with the excretion of abnormal quantities of uric acid and urates. At that time no means of accurately gauging the blood pressure lay ready to hand, but for the last three years having made some 3000 to 4000 observations per annum with Hill and Barnard's larger instrument I am able to add, especially in relation to the interesting discussion which was raised by Professor T. Clifford Allbutt's paper, that, other things being equal, blood pressure rises and falls in young and old in immediate response to increase and diminution of toxicity. The exceptions are so rare that I have met with no more than three in three years, and in them an extreme degree of vascular change existed in conjunction with extensive capillary obsolescence and albuminuria. If my observations are correct it follows that arteriolar contraction plays an important part in the rise of blood pressure even in later years. I desire to add that if there be one affection in which the toxæmia under consideration plays a more important part than in others it is Graves's disease. Some two years ago you called attention in a leading article to a communication of Dr. Cronin of Chicago, in which he claimed to have effected the cure of several cases by measures of intestinal antisepsis. The first case which I treated on that principle made a good recovery in one year, and now for 25 years has led an active life in the enjoyment of good health. Although I have not found it necessary to practise the irrigation of the colon advocated by Dr. Cronin I regard the precaution against self-poisoning as essential to the successful treatment and permanent cure of Graves's disease.

I am, Sirs, yours faithfully,

W. BEZLY THORNE.

Upper Brook-street, W., March 13th, 1903.

## HORLICK'S MALTED MILK.

*To the Editors of* THE LANCET.

SIRS,—My attention has been directed by Messrs. Horlick and Company to the effect that in the address on Patent Foods which I delivered before the South-West London Medical Society in February, 1902, and which you were good enough to publish, I have stated that the amount of fat in their malted milk is 3 per cent. as compared with 26·4 per cent. in dried human milk, instead of 9 per cent. as they claim for it. As my analysis was made three or four years ago I have submitted this preparation to a fresh examination and found in it 7·8 per cent. of fat by one method of analysis and 8·9 per cent. by another. I think there can therefore be no doubt that 9 per cent. may be taken as representing in round numbers the amount of fat which Horlick's malted milk contains. I am sorry if I have given an erroneous impression of its nutritive value, for, as I pointed out in the address, the presence and proportion of fat in foods of this description must be regarded as a most important factor, and I am glad to take this opportunity of correcting my previous statement, especially as it has always been my desire to deal quite fairly by the merits of the proprietary foods.

I am, Sirs, yours faithfully,

Queen Anne-street, W., April 6th, 1903. ROBERT HUTCHISON.

*** Our own analysis of this preparation published in THE LANCET of April 4th, 1891, p. 781, gave the fat as 8·40 per cent.—ED. L.

DEATH OF A CENTENARIAN.—Mrs. Margaret Anne Neve, the senior member of a well-known family in St. Peter Port, Guernsey, died there on April 4th, having very nearly attained the age of 111 years. Her father was Colonel Harvey of the local militia and she was born on the island in the middle of May, 1792. In 1823 she married a Mr. Neve of Tenterden in Kent; they had no family and on being left a widow in 1849 she returned to Guernsey. Until she was 80 years of age Mrs. Neve spent a portion of each year on the continent, travelling in company with her sister who died many years ago at a great age. It is stated that Queen Victoria and Mrs. Neve used to exchange congratulations on their birthdays. Mrs. Neve's eyesight was so well retained that she could knit, read, and do needlework when considerably over 100.

## SPECULATION IN SEWERS.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

*Private Ownership of Sewers at Cheltenham.—The Building of Sewers for Profit and their Defective Condition.—Helpless Position of the Sanitary Authority.*

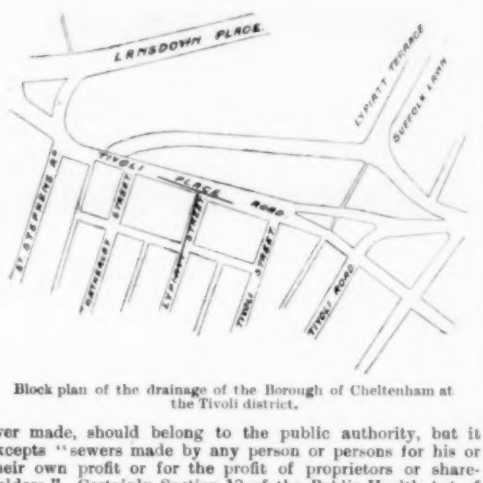
THE town of Cheltenham is in a most extraordinary position. A portion of the sewers are private property, they were made for profit, the corporation must not interfere with them, and yet if they get out of order the owners say that it is not their business to effect the repairs. On the other hand, the owners maintain that if the corporation touches these sewers it can be prosecuted for trespass. It is true that somewhat inconsistently the owners have patched up these sewers here and there with a little cement. The public naturally imagine that as the owners of these private sewers have been paid a rent-charge for their use by the householders they must repair or rebuild the sewers when necessary. But then, even if they consented to do this, the mere rebuilding of worn-out sewers would not meet the case, for the sewers as they now stand do not fit in with the general scheme of drainage for the whole town. Further, and supposing the question of trespass was abandoned by the owners of the sewers and the corporation was to relay and to rebuild the sewers, the cost could not be recovered from the owners of the adjacent property. Some of the private sewers are not under the public road but are under the private front gardens and are close to the walls of the house. If these sewers were to burst their contents would flow into the cellars of the houses. Yet this cannot be altered. The sewers were probably placed in this awkward position so as to keep them as private property, and even if the owners could be forced to reconstruct them this could not be done on any other lines than those that actually exist. On the other hand, if the corporation were to brush aside all these considerations and to insist that proper sewers must be built, not in the private gardens but under the public street, and with a fall giving a flow in the direction that harmonised with the general scheme of drainage, the owners of the private sewers would still claim their rent-charge from the householders—that is to say, the householders might still be compelled to pay for the use of private sewers which had ceased to exist or with which their houses were no longer connected. The *Cheltenham Examiner* of Feb. 24th contains correspondence in which General H. B. Babbage informs one of the principal owners of the private sewers, Mr. J. B. Winterbotham, that "it is now over two years since the corporation wrongly and illegally extinguished my right to use your sewer by cutting off my house-drains from your sewer and joining them to a new sewer of their own without giving me warning. Of this I informed you in May, 1901, and your own position as an alderman of the council must have afforded ample opportunities of verifying it. I applied to the council for redress and compensation by relieving me of the payment of the rent-charge but without effect. The right of user of the sewer and the right to receive the rent-charges go together in my title-deeds and in your own published letter, dated Jan. 24th, 1899, to the town clerk, it is said 'the rent-charge is an agreed sum in return for the right to use the private branch roads and sewers.' I submit to you that my liability to pay the rent-charge has been extinguished with the right to use the sewer, for which I am in no way responsible, and that your remedy is against the corporation."

Though the above argument seems to be most reasonable it appears that General Babbage was mistaken and after legal consultations he has ended by paying the rent-charge in question. Thus General Babbage is now paying for a private sewer which he does not use and he has been compelled to connect his house with the public sewer, for which he also pays in the ordinary local rates. It is difficult to conceive how such a state of affairs could have arisen and could survive in these days of sanitary progress. This has been explained in reports presented to the town council and to the Local Government Board by the town clerk of Cheltenham. It is necessary to bear in mind that Cheltenham is not an ancient historic town. Before the discovery of its mineral waters it was but a mere village, then it suddenly developed into a town when the merits of its waters had been widely acknowledged. But in those days little was known

about sanitary matters and there were no sewers, only cesspits and middens. In 1833, however, a company was formed and it obtained authority by Act of Parliament to construct some sewers at Cheltenham which should have their outfall in the river Chelt. A main sewer and a few branch sewers were constructed by this company, but these only reached about one-tenth of the houses that then existed. The surrounding areas of Pittville, Lansdown, Bayshill, and Tivoli had been converted into building sites, and the landowners concocted a system of drainage of their own with independent outfalls into neighbouring streams. Thus from the very first there was a state of anarchy. On one side there was a company with public powers striving for a uniform system, and on the other there were various owners running systems of their own with no sense of responsibility or concern as to what was being done elsewhere. There was no municipality to defend public interests and the public itself was too ignorant and apathetic to understand that the seeds of future evil and discord were being sown. Such drainage as existed in those days was as much a matter of trading as the running of private omnibuses or cabs. There was no public control whatsoever, nor did the inhabitants of Cheltenham trouble themselves about the question. On the other hand, the owners who had property abutting upon the streams that were befouled by the Cheltenham sewage now draining into them began to complain; and, as a result, efforts were made in the year 1849 to obtain a provisional order applying certain sections of the Public Health Act of 1848 to the town of Cheltenham. The Board of Health thought, however, that the vested interests already created in the town were such as could not be met by the proposed provisional order and that a special Act of Parliament was necessary. The refusal of the Board of Health—and its successor, the Local Government Board, approved of its attitude—led ultimately to the Cheltenham Improvement Act of 1852.

This Act is still in force and it was enacted at the time as a compromise between public and private interests. The Act brought into existence an improvement board which purchased the system of sewers built by the sewers company and after giving ample compensation converted them into public property. On the other hand, the sewers that were owned, not by the company but by private individuals, remained the property of such individuals. It is true that Section 43 of the general Act provided that all sewers, whenever made, should belong to the public authority, but it excepts "sewers made by any person or persons for his or their own profit or for the profit of proprietors or shareholders." Certainly Section 13 of the Public Health Act of 1875 is more doubtful; but it also states that sewers built for profit cannot be converted into public property and some time ago Lord Justice Romer gave a verdict to that effect in the case of Lattrell *v.* the Minehead Local Board. The judge then recognised that a sewer, for the use of which rent-charges had been fixed, was a sewer built for profit in the sense of the Act of 1875 under Section 13. This would enable anyone who built a sewer to retain it as his private property and the matter should have been taken to a higher court. But in this instance the owner of the private sewer, though he had won his case, finally consented to sell his private sewers to the local authority, and therefore the legal position could not be further tested. All these difficulties, however, were scarcely foreseen when the local Act was brought forward and sanctioned in 1852. There was then no local authority worthy of the name at Cheltenham and the Tivoli district, whence to-day the greatest complaints arise, was being laid out by the late Mr. Pearson Thompson. (Fig 1.) This gentleman put in sewers and carried the main down to Hatherley. To cover the cost of the sewers and to keep the roads in repair he charged every householder 10*s.* 6*d.* a year. This was the best that could be done at that time. After the Act of 1852, when town commissioners were appointed and something like municipal government came into existence, the whole of this work should have been taken over; but instead of doing this Mr. Thompson was only relieved of certain liabilities in regard to the roads. The sewers were still left in his hands though he had to reduce his rent-charge to 5*s.* 3*d.* and this sewer rent subsists to this day. This then was the crucial mistake, for if it was possible in 1852 to reduce the rent-charge by half it was possible to do away with it altogether, and now it cannot be abolished unless it be by another Act of Parliament.

FIG. 1.




Block plan of the drainage of the Borough of Cheltenham at the Tivoli district.

The town council is in an extraordinary position. It ought to carry out a proper scheme of drainage and yet it has not the legal power to do so. The private sewers should be abolished not merely as private sewers but as sewers built 70 or more years ago and as being now a menace to the public health. They are brick sewers and the walls are only of the thickness of one brick—that is, four and a half inches. The bricks are ordinary porous bricks so that the sewage easily filters through them. They were not cemented but held together by ordinary mortar. Now this is so soft that a pencil can be thrust through. Then the inverts are too flat and there is no systematic system of flushing. Nor is the size or the fall in these sewers contrived so as to give sufficient velocity to the flow of water to insure a self-cleansing action; therefore these old sewers are heavily charged with thick fermenting deposits that have accumulated and that even the most violent storms cannot completely clear away. Occasionally these private sewers burst. A short time ago there was a subsidence of one of them and the cellars of several houses were flooded with sewage and the inhabitants did not know who was to be called upon to put the matter in order. By Section 40 of the local Act of 1852 the sanitary authority is empowered to serve notices calling upon the owners of the sewers to repair or to reconstruct the sewers, but the owners might refuse and then the sanitary authority would have to do the work itself. So far so good, but the matter becomes complex when the question of payment is raised. The Act says that the authority shall recover the cost not from the owners of the sewers but from the owners and occupiers of the houses in the streets that have been benefited. These are the people who are actually paying a sewer rent-charge and they are to be told that though they must also pay the authorities they could recover the amount from the person to whom they paid a sewer rent-charge. But then Mr. Winterbotham, who receives a part of these sewer rent-charges, calculates that out of the 5*s.* 3*d.* rent-charge on the small cottages in the Tivoli district only 1*s.* 9*d.* was applicable to the sewers. So that the householder in this district, if called upon to pay for the reconstruction of the sewers, would have to wait a long time before he got back his outlay if he only received 1*s.* 9*d.* a year towards it. Then, again, even if the owners of the sewers are thus made through the course of ages to pay, they can very well argue that they are not bound to rebuild better sewers than those which they originally laid down, nor need they alter their position or level and bring them into harmony with the general scheme for draining the entire town. It will be seen, therefore, that the Act is utterly unworkable and the only thing to be done is for the municipality to buy out all these owners of private sewers. This would be in the true public interest and the occupiers of the houses naturally do not want to go on paying sewer rent-charges for ever, especially as the private owners to whom these payments are made will not keep the sewers in order. Indeed, there is a tendency on the part of some among them to repudiate any such responsibility. It is argued that the rent-charges are interest for money lent and not payment for sewers, and that many of these rent-charges are now mortgaged. The tendency is to evade all

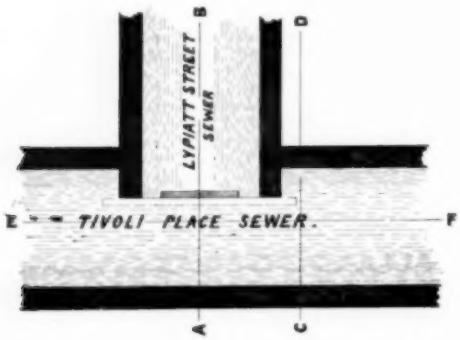
responsibility, to let the sanitary authority do what it likes, to charge any persons it likes for the expense, to abolish the old sewers altogether so long as the owners of the sewers may continue to levy their sewer rent-charge in perpetuity, and this even when the original sewers on which the charge is based have ceased to exist. Of course this does not meet the view of the tenants and occupiers who, like General Babbage, consider that when the private sewer is no longer used that the the rent-charge can no longer be levied. For years this question has been argued and two attempts have been made to introduce a Bill in Parliament to settle this matter. Both attempts have failed.

In the meanwhile the drainage of Cheltenham is in a parlous state. The town council being aware that some of the older sewers were in an imperfect condition divided the town into districts and took them *seriatim*, digging up and rebuilding the old sewers. But in some districts this action was paralysed because some of the sewers belonged to private owners and could not be touched. A crucial case occurred in regard to the sewers of Tivoli-place and Lypiatt-street. (See Fig. 1.) Some houses had been flooded there. It was found that one sewer came over the top of another sewer. A flagstone had been put in front of the upper sewer, a few bricks had been knocked out of the roof of the lower sewer, and in this manner the sewage was left to drop out of the one sewer into the other. But some of the bricks on the side of the upper sewer had been knocked away also therefore the sewage was able to escape freely into the surrounding subsoil. Well may the medical officer of health, Dr. J. H. Garrett, in a memorandum on the necessity of legislation to deal with these matters say: "The sanitary officials have for long been aware that *gross defects exist in many of the sewers of the Tivoli district*, and in numerous instances the house drains connected with these privately owned sewers are known to be defective." Moreover, the vicar of St. Stephen's, a church in this district, the Rev. E. L. Jennings, writes: "These private sewers are in a deplorable condition. The medical officer has strongly condemned them and the ex-borough surveyor on one occasion declared that so thin and rotten are they he could push his lead pencil through them. They are old brick sewers and were thinly and cheaply constructed, even according to the crude notions on such matters which prevailed when the estates were planned. Several times during the past few years they have collapsed in places with results to houses in the vicinity too offensive to be described."

This letter appeared in the *Cheltenham Examiner* of Dec. 31st, 1902, and represents a very general feeling. The construction and the management of sewers are too serious matters to be left at the mercy of private owners, and yet the efforts made to alter this abnormal and dangerous state of affairs have not yet been in any measure successful.

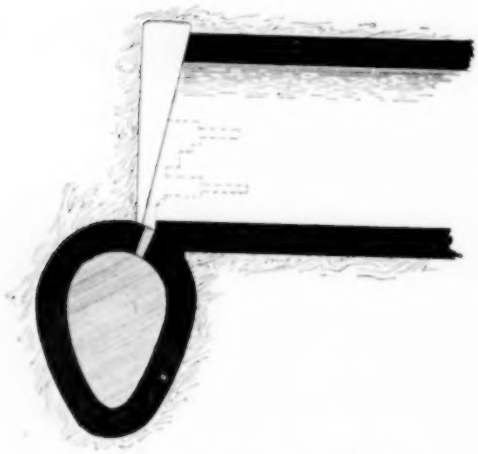
*(To be continued.)*

FIG. 2.



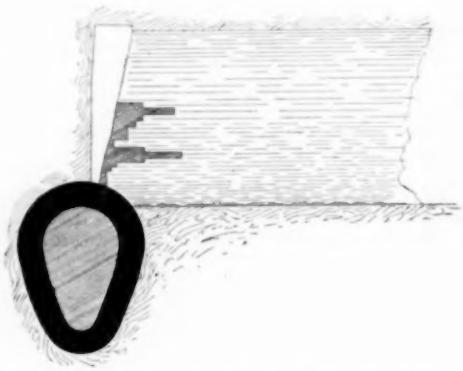

Plan of the corner in the sewers of the Borough of Cheltenham. (See also block plan, Fig. 1.)

FIG. 3.



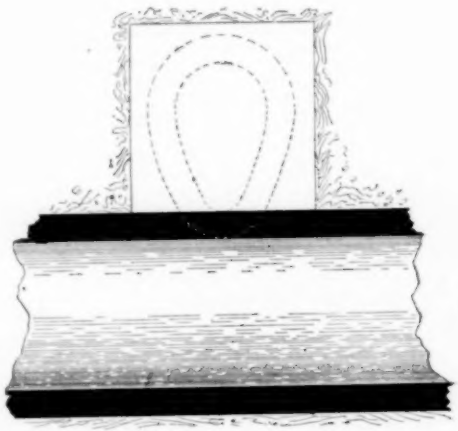
Section through A B of Fig. 2, showing the flagstone at the end of the sewer in section.

FIG. 4.



Sectional elevation on C D of Fig. 2. To the right of the flagstone is seen the place where the bricks have fallen away.

FIG. 5.



Sectional elevation through E F of Fig. 2.

# NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

*The Plague Epidemic.—The Improvement Trusts of the Cities of Bombay and Calcutta.—Retirement of Colonel T. H. Hendley, C.I.E.*

THE figures of last week—viz., 28,860—have been passed and I now have to record 29,647 deaths from plague throughout India for the week ending March 7th. In the corresponding week in 1902 there were 23,715 deaths. The total number of deaths recorded since the autumn of 1896 exceeds 1,500,000, and another 500,000 might well be added for concealed and unrecorded deaths, so that plague has probably claimed 2,000,000 victims. There seems a tendency in the mortality to reach its highest point later in the season with every recurring annual development, and we may expect 30,000 deaths a week for the next two months. The details of the week's figures are: Bombay city, 1323 deaths; Bombay Presidency, 9878; Karachi city, 57; Madras Presidency, 529; Calcutta, 679; Bengal Presidency, 2909; United Provinces, 3437; Punjab, 6814; Central Provinces, 1704; Mysore State, 304; Hyderabad State, 863; Berar, 641; and Central India, 440. The outbreak at Poona is subsiding but in Bombay city and Calcutta the recrudescences are developing rapidly. At Benares the disease is again making headway and the health officer has fallen a victim to it. In Bengal the chief districts affected are—Saran 1273 deaths, Patna 748, Durbhanga 320, Monghyr 278, and Muzaffurpur 223. The curious case of superstition in a plague goddess in Bombay, which I recorded last week, has ended in the acquittal of the accused, the magistrate holding that the woman did not commit a public nuisance and that being an ignorant person she was not presumed to have reason to believe that her acts would spread infection.

The Improvement Trust in Bombay has several schemes in hand. One is a great thoroughfare from Queen's-road through Dhobi Talao to Carnac Bridge. Another is the reclamation of the foreshore at Colaba. This will provide sites for about 45 bungalows and the reclaimed area will be one of the coolest sites in Bombay.

Calcutta is now to have its Improvement Trust. The scheme just announced provides for nine and a half miles of 60-foot roads running north and south and six and a half miles of 40-foot roads running east and west. The purchase of land and buildings and the making of the roads are estimated at Rs. 478,00,000 (over three millions sterling) and the gross expenditure on the scheme at Rs. 718,00,000. After allowing for recoupment the net cost is estimated at 187 lakhs. The financial arrangements will extend over 20 years. The Government grant is 50 lakhs, the corporation will find 144 lakhs, there will be special loans of 233 lakhs, and recoupment by sale of land will bring in about 291 lakhs. Those who know the northern half of Calcutta will realise the vastness of this undertaking. The value of land in the business quarters is very high and is said to rival that of the City of London. Part of the financial scheme consists in a tax on petroleum which is estimated to produce Rs. 1,50,000 annually. The Calcutta Corporation may be considered a wealthy body from the fact that it has in reserve large borrowing powers. In the first year it will only contribute one lakh but there will be gradually increasing contributions up to 12 lakhs in the tenth year, then for four years it will find 10 lakhs, and the amounts will gradually fall to about the twentieth year. All this is over and above the numerous schemes and expenditure which were referred to in the recent Budget. It is, therefore, evident that there is a healthy rivalry between the two municipalities in improving and beautifying their respective charges and in making up in each case for long years of indifference and neglect.

After many years' service in India Colonel T. H. Hendley, C.I.E., the Inspector-General of Civil Hospitals, Bengal, will retire at the end of the present month. He is to be succeeded by Lieutenant-Colonel S. Haslett Browne, I.M.S.

March 14th.

*Concessions to Officers of the Royal Army Medical Corps in India.—The Plague Epidemic: a Fresh Record in Mortality.*

The Government of India has now sanctioned an increase of pay and other concessions to lieutenants and captains on the Indian establishment of the Royal Army Medical Corps. The concession takes effect from Nov. 24th last. The question of improving the pay of senior officers will be considered later. The new arrangements sanction for lieutenants, Rs. 420 per mensem; captains, Rs. 475, or if over seven years' service Rs. 530, or if over ten years' service Rs. 650. A charge allowance will be paid to the senior medical officer in charge of a hospital, the rates being, in the case of 300 or more beds Rs. 240, of 200 or more beds Rs. 180, of 100 or more beds Rs. 120, and of 50 or more beds Rs. 60 monthly. Specialists' pay at the rate of Rs. 60 monthly will also be granted to officers below the rank of lieutenant-colonel who may be appointed to posts entitling them to this pay.

The mortality from plague throughout India continues to increase weekly. A further record was reached last week by the return of 29,997 deaths. In the previous seven days the deaths were 29,647 and for the corresponding week last year 25,655. Hitherto the Bombay Presidency has headed the list but this week the Punjab returns the larger number—viz., 8177 deaths compared with 7764 in Bombay. In view of the very large mortality recorded from the Punjab last year we may expect still higher figures. The United Provinces returned 4177 deaths; Bengal, 3839; Madras Presidency, 330; Central Provinces, 1527; Mysore State, 817; Hyderabad State, 845; Berar, 501; Central India, 276; and Rajputana, 132. Bombay city returns 1107 deaths for the past week—a slight and probably temporary decrease. Calcutta returns 895 deaths, a very considerable rise on the previous seven days. Karachi city is once again recording high figures, the return of 105 deaths showing that the disease is as active there as in Calcutta. The German East Africa line steamer *Khalif* arrived in Bombay harbour from Zanzibar, *viâ* Marmugoa, having had eight deaths during the voyage from plague—one passenger and seven of the crew.

March 19th.

# MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

*The Removal of the Infirmary.*

AT length, after controversy and discussion, carried on at intervals for many weary years, sometimes waning for a time, then waxing stronger and more heated, it has been decided that the Manchester Royal Infirmary shall be removed from Piccadilly. The corporation had agreed to give £400,000, the price asked by the infirmary board for the whole site, and it therefore only remained for the trustees to sanction the sale and to decide where the future infirmary was to be placed. A special meeting of the trustees took place on April 3rd, when the following motions were proposed *en bloc* by Mr. John Thomson, chairman of the infirmary board, seconded by the vice-chairman, Mr. Neville Clegg, and carried unanimously.

1. That the offer of the Manchester corporation to purchase the infirmary site for £400,000 be accepted, and the board of management be authorised to carry out the sale.

2. That the new infirmary be built on the Stanley-grove site and that the board of management be authorised to acquire the same, and any other adjoining property that may be expedient, including the site of the proposed Southern Hospital, on such terms and conditions as they may think desirable in the interests of the charity.

3. That the board of management be authorised to obtain plans for the erection of the new infirmary and to submit the same, together with an estimate of cost, to a future meeting of trustees.

4. That the board of management be authorised to take, and concur with other persons in taking, all such measures as may be requisite to give effect to the foregoing resolutions, including any application to Parliament or to any other authorities.

The Stanley-grove site, offered as a gift by the Owens College, supplemented by the acquisition of some of the adjacent properties—namely, that belonging to the Southern Hospital but not yet occupied and to be bought by the infirmary, together with some houses and gardens fronting Nelson-street, which runs at right angles to Oxford-road—will give an ample area of over 60,000 square yards, with possibilities of extension. It also, as the report on sites remarks, satisfies other essentials, as "reasonable proximity" to the centre of the town, ready accessibility by tramway routes, a frontage of nearly 200 yards to Oxford-road, open surroundings, especially to the south-west—Whitworth Park, containing 21 acres, being just across the road—proximity to the Owens College Medical School and to the Eye Hospital, which is next door, and moderate cost. The additions to the original site will cost about £40,000. Numerous other sites were investigated, but

only two deserved serious consideration, and they were too far from the centre of the town and from the Owens College. It may be pretty confidently assumed now that in due course Manchester will have a greatly extended and much improved infirmary such as she could never have had in Piccadilly and all—even those who have opposed the change—will join in the sentiment expressed by Sir W. H. Houldsworth, Bart., M.P., in moving a vote of thanks: "It was a satisfaction to feel that this vexed question was finally settled and their thanks were due to all concerned."

*Suspected Mussels.*

The sanitary committee of the corporation received a short time since a communication from the medical officer of health of Great Yarmouth stating that mussels dredged from the Yare were being sent to Manchester and that as the Yare received the whole of the crude sewage of the town and the mussel beds were usually located close to the outlets of the main sewers, he thought it was his duty to send the information. In consequence of this the markets committee was requested to give instructions for the seizing of any mussels dredged from the Yare. At the meeting of the council on April 1st the following resolution was adopted:—

That in the opinion of this council it is urgently necessary, in the interest of the public health, that legislation should be enacted by Parliament for the protection of the public against the danger to health arising from the consumption of oysters and other shell-fish derived from sewage-polluted sources, and that the President of the Local Government Board be respectfully requested to introduce such a measure into the next session of Parliament.

A similar resolution was passed by the Salford council on the same day. Mr. Alderman Phillips, as representative of the corporation on the Lancashire Sea Fisheries Board, spoke of the necessity there was for legislation. At present there is no law to prevent the taking of fish from places polluted with sewage. "He thought the fisheries board ought to have jurisdiction with regard to the taking of such fish and the sanitary authorities with regard to the sale." Of course the whole difficulty results from our lazy and wasteful habit of turning our sewage into the nearest ditch or stream or into the sea. If the scare as to the dangers of sewage-polluted shell-fish were to be followed by serious attempts to solve the difficult problem of how to return the sewage to the land, one would be tempted to say that evil sometimes brings forth good. In the meantime a valuable food is rendered worse than useless and a large number of industrious people are in distress, as their occupation is gone.

*The Cleansing of Rivers.*

The annual meeting of the Mersey and Irwell joint committee was held lately, when Sir J. T. Hibbert was re-elected as chairman, a position he has occupied since its formation 11 years ago. In his address he said they had in that period achieved satisfactory results, but "were yet far from having the two rivers under their control in a state of perfection." No one will dispute the fact that in spite of improvement, the two rivers are in a state of foulness disgraceful to the community. Sir John Hibbert pays a tribute to the manufacturers who "had acted splendidly, even nobly." No doubt many have made efforts to abstain from sending their filthy refuse on to their neighbours lower down the stream, but "unfortunately," as one of our daily papers says, "we fear this is a case where the sins of the few undo the virtue of the many." There are 82 local authorities in the watershed, five of which are specified as being the chief delinquents—namely, those of Macclesfield, Hyde, Failsworth, Middleton, and Bolton. The first-named, which sends its sewage into the river Bollin, has been so persistently obstinate, inquiring as to the best methods of disposing of sewage for the last 11 years but doing little or nothing, that the Macclesfield corporation has been informed that unless a definite scheme were placed before the joint committee at the end of three months legal proceedings would be taken against them. With regard to this awful threat, the *Manchester Guardian* says: "Perhaps within another 11 years we may have a cleansed Bollin."

April 7th.

## IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

*The Oyster Scandal in Dublin.*

THE public health authorities of the Dublin corporation have again been caught napping and the Local Government Board has been apparently obliged to intervene. At a meeting of the public health committee held on March 31st a letter was read from the Local Government Board containing—in the special reports of its medical inspector, Mr. D. Edgar Flinn, and of its bacteriologist, Professor E. J. McWeeney—some important and startling disclosures. Some years ago one of the numerous outbreaks of typhoid fever which took place in the city was attributed to the consumption of oysters taken from the beds on the septic foreshore at Clontarf, while, for a long period, sporadic cases of the disease were traceable to the same source. The sale of such oysters was thought to have been long since discontinued. Now, as appears from the report of the Local Government Board, it is stated that the Clontarf oyster industry has continued to flourish and that shell-fish *fattened* near the principal sewer outfalls of the city have been enjoying a ready sale in the metropolis and its neighbourhood. I quote from the published report of Mr. Flinn, the able inspector of the Board: "The oyster layings at Clontarf are practically surrounded on all sides by sewerage outfalls at variable distances from 700 to 2500 yards, while in addition to the principal sewers marked on the ordnance survey map several minor sewers discharge also on this foreshore. The Clontarf beds are largely used for the laying down of oysters at certain seasons of the year. Numerous consignments of American Blue Point and East River oysters are brought there in March and April from Liverpool for the purpose of being fattened. Other consignments arrive in November. Those oysters remain in the Clontarf beds for periods, I understand, ranging from three to six months when they are placed on the market for sale. Consignments from the district of Oranmore, co. Galway, are also forwarded periodically and placed on the beds for the same purpose. On the date of my first visit to Clontarf Professor McWeeney accompanied me and collected several samples of oysters at various points. The result of his examination reveals the fact that the oyster layings at Clontarf are polluted, as the samples examined by him were clearly contaminated with excrementitious matter. The presence of the bacillus coli communis, it will be observed, was detected in practically all the samples examined by Professor McWeeney." The above is an accurate extract from Mr. Flinn's published report. Professor McWeeney's brief bacteriological statement fully corroborates it, but on account of the necessary delay in his scientific investigation he is obliged to postpone a full report to the Board. It occurs to me—your correspondent—that of all the suggestions that have been made for the utilisation of sewage matter, the fattening of oysters for human consumption is the worst.

*The Recent Action against Professor J. W. Byers: Votes of Professional Confidence.*

At a special meeting of the Ulster Branch of the British Medical Association held in Belfast on April 2nd the following resolution was unanimously passed, on the motion of Dr. Henry O'Neill, seconded by Dr. H. L. M'Kisack:—

We, the members of the Ulster Branch of the British Medical Association, heartily congratulate Professor J. W. Byers, M.D., one of its ex-presidents, on the result of the recent legal action in which he was concerned. The courage and straightforwardness with which he defended an action, not merely of private, but also of public, interest, elicited our warmest admiration. We beg to assure him that he possessed throughout the full sympathy and confidence of his professional brethren and that he retains that undiminished esteem and respect. That a lawsuit so likely to prejudice the harmonious relations that ought to exist between medical men and nurses should ever have been instituted has been to us a source of grave concern and regret. We rejoice that we can tender to Professor Byers our congratulations on the satisfactory termination.

At a general meeting of the Ulster Medical Society held in the Medical Institute, Belfast, on April 2nd, the following recommendation of the council of the society was adopted unanimously on the motion of the President (Dr. John Campbell), seconded by Professor P. Redfern:—

That we, the Fellows and members of the Ulster Medical Society, desire to congratulate Professor J. W. Byers on the satisfactory result of the recent action brought against him in the law courts. During the time that this case was pending the medical profession in Ulster, knowing Dr. Byers's high and honourable character, were unanimous in the opinion that there could be no foundation in fact for the allegations of the plaintiff. We are, therefore, extremely gratified that the proceedings in court have amply justified this opinion. We tender to Professor Byers our most sincere sympathy in the trying circumstances in which he has been placed in the eyes of the public by this most unjustifiable action.

*National Hospital for Consumption in Ireland.*

The eleventh annual meeting of the friends and supporters of the National Hospital for Consumption in Ireland was very successful. The committee reported that 217 patients had

been treated last year, of whom 82 per cent. were improved at the end of 12 months, and that many were discharged "being to all appearance cured and able to resume their ordinary avocations." The report stated that a sum of £1500 was required to carry out additions and improvements at the institution at Newcastle. Earl Fitzwilliam, who was in the chair, promised a subscription of £500 if the remainder was forthcoming by next June, and the Earl of Dudley, who was present, immediately responded by a cheque for £250. £400 altogether were subscribed at the meeting.

*The Duty of Poor-law Guardians to Provide Medical Aid.*

A rather unusual action came on for hearing before the co. Kerry chairman of quarter sessions. It appeared from the evidence that the Cahirciveen board of guardians left one of the districts of the union for 12 days without a dispensary medical officer. During that period a labourer's wife died in her confinement. Her husband alleged that her death was due to the failure of the guardians to provide adequate medical assistance and he claimed damages, which were assessed by the judge at £45. This decision will materially help the Irish Medical Association in its agitation for increased pay for dispensary medical officers. The association is careful to inform the guardians that they will be prepared to aid them in providing temporarily for the needs of any district where there are no applicants for the post owing to the lowness of the salary offered if the guardians will pay the locum-tenent fair remuneration. With the prospect of a few actions dangling over their heads Poor-law guardians will be in a greater hurry to appoint properly paid dispensary medical officers, or at least they will not hesitate to pay a decent sum to a locum-tenent who is ready to do the duty whilst they are looking out for a permanent official. But it is only fair to say that the dispensary medical officers as a rule consider they would be more generously dealt with by the guardians were it not for the controlling power exercised by the Local Government Board officials.

April 6th.

## PARIS.

(FROM OUR OWN CORRESPONDENT.)

*Infant Life Protection.*

AT the meeting of the Academy of Medicine held on March 17th M. Pinard insisted on the necessity for the strict application of that clause of the Loi Roussel which forbids a woman to take a place as wet nurse before her own child shall have attained the age of seven months. M. Pinard recounted the difficulties which are met with in the application of this clause and further said that of his own personal knowledge he knew that the provisions of that particular clause (No. 8) were frequently violated and that the certificates given to wet nurses often contained a false declaration as to the age of their children, so as to enable them to take a place before the expiration of the seven months prescribed by law. M. Pinard considered it absolutely necessary that measures should be taken to enforce the provisions of the law. He therefore expressed himself as strongly opposed to a proposal which was laid before the Academy some time back by the committee appointed to inquire into the hygiene of infancy and which suggested that the age should be lowered from seven to three months. I have already referred to this committee in my letter published in THE LANCET of Feb. 14th, p. 484. At the meeting of the Academy held on March 17th further discussion of the question was deferred until the meeting on the 24th. In resuming, M. Pinard implored the Academy not only not to lower the age from seven months but to raise it to one year. The mother's milk, he said, belongs to her child and she has no right to sell it, however needy she may be. If, as is the case, the mortality among nurses' children who are left behind in the villages is at present appalling, how much more so will it be if their mothers leave them for four months sooner than they do already? M. Guéniot said that the mortality among the children of young unmarried women is just as high as that existing among the children of women who leave them to go out wet-nursing. The unmarried girl whom the law forbids to take a place as wet nurse before her own child is seven months old is often reduced to sore misery. She is obliged to go out to work and so must either leave her baby alone or hand it over to a neighbour to take care of, and even when she can nurse the child the milk of a woman who is unhappy and poverty-stricken is of poor quality. M. Budin said that he was sorry that M. Pinard had quoted no figures relative to the mortality among the children of wet nurses. To impose upon an unmarried mother the necessity for waiting seven months before she could gain a livelihood for herself and her child was practically to force her to hand her infant over to the foundling hospital. As the mortality of infants is greatest in the early months of life, and especially during the first month, the child who survives until the end of the third month has attained a fair measure of resistance, and it was in view of this fact that M. Porak sought to reduce the age-limit from seven to three months, while making it plain that the three-months' limit should be rigorously insisted upon. The ideal system would be that the wet nurse should take her own child with her into the family where she was engaged as nurse. The results would be favourable for both children, as the quantity of the mother's milk would increase month by month. M. Pinard, in responding, stuck to his point, but he agreed that it was desirable that the nurse should take her child with her. Before all things he thought that a healthy child should be allowed to accompany its mother so as to preserve it and as a proof of the good quality of the mother's milk. The discussion then closed and by a very small majority, there being an enormous number of abstentions, the Academy resolved upon the rejection of the report of the committee, at any rate, as far as concerned the lowering of the age limit. The Academy also passed a resolution that poor women should be given an *indemnité d'allaitement* which would help them to bring up their own children.

April 6th.

## NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

*Lectures on the Relations of Physicians to the Community.*

A NOVEL series of lectures has been inaugurated by the medical students of Harvard Medical College. The general subject is the relation of physicians to the community in which they live. As there are many interesting questions involved in this inquiry, according to the point of view from which it is considered, the lecturers are taken from various ranks and conditions of society. This feature of the course is of the first importance, for it will enable medical men to see themselves as others see them and the very discussion of the subject by capable laymen will tend powerfully to enlighten the community as to the proper relations of the medical man to the society in which he casts his lot. It has been well said that the movement shows a growing interest among students of medicine in the broader aspects of their professional work and in the responsibilities which it is sure to entail; the students are becoming more independent in thought and are exercising a more critical judgment on the work they are called upon to do and on the teachers who direct it. Broadly speaking, they desire to learn from men of experience as to their future social and ethical relations to the communities in which they may happen to be placed.

*Institute for Medical Research.*

Mention has been made of a large sum of money given by Mr. John D. Rockefeller to establish in this city an institution devoted to medical research and of the organisation of a corps of competent officers. The organisation has prosecuted its work until a site has been chosen and the preliminary work begun. It will be noticed that this is a departure from the original plans which contemplated distributing its work largely among existing laboratories. It has been found impracticable to do the high grade of research contemplated in existing laboratories owing to a lack of that equipment which modern methods require. This conclusion led to the determination to create with the foundation furnished by the generosity of the original donor an institute and fully to equip it for every variety of research possible. The land now purchased is for that purpose and is ample in extent and favourably located. In addition to the several special laboratory buildings there is to be a hospital for the immediate study of diseases at every stage of their progress. We have now the assurance that this institute is to be the most complete in every possible detail for accurate and exhaustive study of the causes and treatment of human diseases of any similar institutions as yet created.

*A Typhoid-stricken University.*

Cornell University, located at Ithaca, New York, is suffering severely from an outbreak of typhoid fever. Upwards of 150 cases have occurred with 20 deaths. The city of Ithaca, where the university is located, has a population of 13,000 and the number of cases of typhoid fever is estimated to have been not less than 1000. The cause of this outbreak is due to an infected water-supply to the city and university. Much blame has been attached to the trustees of the university for an apparent neglect of the drinking water supplied to the students. The supply was the same as that of the city in which typhoid fever apparently has been mildly prevalent for several years. This supply was from several superficial streams flowing through a farming district. During the last few years Italian labourers have camped along some of these streams and cases of typhoid fever have occasionally been reported among them. It seems most consistent with the facts to attribute the outbreak both in the city and university to this source. This is not an isolated instance of the occurrence of an epidemic of typhoid fever in large towns deriving their water-supply from streams or from sunken grounds. The number of Italian labourers in the country is enormous and they are accustomed to camp along running streams of water in the summer. Their habits are extremely filthy and typhoid fever is common among them, which they frequently conceal. The trustees of the university are now fully alive to the immediate importance of securing an adequate supply of potable water positively free for all time from the possibility of contamination. But in the meantime it has received a most damaging set-back which may require much time to overcome.

*A Strike among Nurses.*

The burden of news in the daily papers is the outbreak of strikes in every part of the country and in every form of industry. But the report of a strike among nurses, having all the typical peculiarities of the ordinary strike among labourers, has taken the public by surprise. It is alleged that the nurses in a hospital took offence at the introduction among them of a non-diplomaed assistant. It is stated also that when they left the striking nurses or some among them destroyed records, mixed up medicines, deranged glasses and bottles, and concealed keys of instrument cases. The only things apparently lacking were the picketing of the hospital and slugging, or perhaps hair-pulling and scratching, of their substitutes. By aid from other hospitals the trouble was tided over without serious consequences, but the occurrence is an unfortunate one and does not tend to elevate the opinion of the profession as regards the strikers. A medical periodical commenting on the occurrence very justly remarks that, like the physician, the nurse should regard her profession as altruistic; these particular nurses seem to have had a very imperfect idea of their duties; if the facts as charged are true they should be condemned by their associates.

*Modern Army Transport Service.*

Major H. S. Kilbourne has recently described the improved United States Army Transport Service, which now forms a separate branch of the Quartermaster-General's department, with headquarters at New York and San Francisco. The prevalent dampness of the lower decks is diminished by incast and extraction fans; free circulation below is secured as a prime necessity for vessels in the tropics, where the combined heat and humidity are inimical to passengers and cargo; apparatus for cooling or warming the air in living and sleeping quarters adds greatly to the comfort of soldiers, and the refrigerating apparatus improves the dietary by furnishing cold storage for perishable foods; by means of the double system of storage and distillation an ample pure water-supply is always maintained; lavatories, baths, latrines, and a laundry are installed on the troop decks and separate galleys for soldiers' mess are provided at which a full ration can be arranged; on the berth decks 78 cubic feet per man are provided and are deemed sufficient in view of the fan ventilation, electric lighting, cleanliness of the person, bedding, and decks. The hospital arrangements are perfected with the greatest care. On the larger transports the hospital occupies the after main deck and accommodates from 3 to 5 per cent. of the troops with air space per man of from 100 to 150 cubic feet in the main ward. Above the latter is an isolation ward with a separate room for intractable patients; this is supplied with lavatories, baths, and closets. Adjoining the main ward are arranged a lavatory, closets, operating room, linen room, special diet kitchen, surgeon's room, and rooms for attendants, all fully equipped for practical use. Through the floor of the main ward is an entrance to a general medical store room. Air ducts overhead having lateral discharge into the ward supply adequate ventilation in heavy weather. Double tier steel berth sections with woven-wire beds, later exchanged for canvas, are secured to the deck. The equipment is completed with instruments and three months' medical supplies. The practical results of these improved transports on the health of the troops is of the most gratifying kind.

*Abolishing the Office of Coroner.*

New York city is endeavouring to abolish the office of coroner by requiring the Board of Health to perform all the duties connected with the verification of deaths from unknown causes and imposing on the district attorney the legal functions connected with the inquest which is to be held in a magistrate's court. The coroners and their political supporters are making a desperate effort to retain their highly-salaried offices. The change proposed is of the utmost importance.

*Pure Food Bill.*

The Pure Food Bill approved by the National Pure Food and Drug Congress and by the Committee on Inter-State and Foreign Commerce of the House of Representatives of the United States passed the House on Dec. 19th last by an overwhelming majority. The same Bill, with amendments, has been recommended unanimously by the Senate Committee on Manufactures and is now pending in the Senate of the United States. These Bills, if passed, should go far towards checking the tendency in the United States to adulterate everything eatable. Under the provisions of these Bills products, however adulterated, but not considered deleterious, must be placed on the market under their true names and in such a manner as to advise the purchaser of what he is getting.

March 30th.

# Obituary.

## EDWARD WILMSHURST TAIT, M.R.C.S. ENG., L.S.A.

THE death of Mr. Edward Wilmshurst Tait, so long connected by medical practice with Highbury, occurred on March 31st at his residence at Hampstead. He had for ten years been out of practice and little seen by his medical brethren. But the announcement of his death was received by those who knew him with a genuine sense of loss. Mr. Tait was born at Heytesbury, Wilts, in 1829. His father was a minister of the Congregational Church and he himself continued loyal to Nonconformist principles throughout life. He entered as a student at St. Bartholomew's Hospital and the following passage from the "Life of Sir James Paget" shows how deeply that great man and learned teacher impressed him.

"You cannot tell," writes Mr. E. W. Tait to Sir James Paget, "how much effect your life has had upon mine. When I came up to town in 1848 my mind was singularly uninstructed and untrained. Your influence, with that of F. D. Maurice, opened to me a world of living fact, thought, and discipline You yourself and your words—especially your lectures upon the functions of the cerebrum—deeply impressed me; your teaching of the essential potency of the will, and of its sure guidance by the pure reason, became a lasting influence in my life. You and he have lived ever since in my innermost nature."

Before commencing his medical studies at St. Bartholomew's Hospital Mr. Tait was apprenticed to Mr. Shapleton of Trowbridge. After taking the qualifications of the Apothecaries' Society (1851) and the Royal College of Surgeons of England (1852) he began practice in Canonbury. Thence he moved to Highbury-park and continued in full work till 1890, when his health broke down. Soon afterwards his sight failed and he gradually diminished his work, till finally he retired and lived at Hampstead, where he died, the cause of death being pneumonia. Mr. Tait, who was twice married, has left three sons—Mr. Charles Tait of Exeter, Dr. Edward S. Tait of Highbury, and Mr. Henry Brewer Tait of Hornsey Rise.

"It is difficult," writes an intimate friend of the deceased gentlemen, "to define the charm of Mr. Tait's personal and professional character. But it was very real and endeared

him to a large number of patients, of professional men, and of friends. He was a perfect Christian gentleman. His countenance, physique, and whole personality corresponded to his character. His courtesy was no mere affair of superficial manners or of feeling but of that deep and innate kind which comes of real culture and consideration. One of his last anxieties was about the weariness of the nurse who ministered to him. When such qualities are associated with an open mind full of reverence for all that is true, whether old or new, in medicine, science, literature, and religion, we have an explanation of the wide respect and affection with which Mr. Tait was regarded by all who had the advantage of knowing him."

### WILLIAM HENRY NEILSON, M.B., C.M. ABERD.,
LIEUTENANT-COLONEL, INDIAN MEDICAL SERVICE.

LIEUTENANT-COLONEL W. H. NEILSON, I.M.S., died on March 23rd at Indore, Central India, in his forty-ninth year. He was stationed at Sirdaripore and it is understood that he had gone from that place to Indore for the purpose of obtaining medical advice, as his health had been unsatisfactory for some time past. He was a native of Kirkcudbright and received his professional education at Aberdeen University, where he graduated as M.B. and C.M. in 1879. After a couple of years spent as a surgeon in the mercantile marine he became assistant surgeon in the Indian Medical Service in September, 1882. In September, 1894, he was promoted to be surgeon-major with the honorary rank of lieutenant-colonel. Mrs. Neilson, who survives him, is a daughter of the late Inspector-General Skene, I.M.S.

# Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At the Primary Examination the following candidates passed in the subjects indicated :—

PART I.

*Biology.*—C. J. Evans, St. Bartholomew's Hospital; M. L. Ford, Birkbeck Institute; C. A. Mortlock-Brown, University College; and C. S. Spencer, Manchester.

*Chemistry.*—W. B. Neatby, London Hospital; F. B. O'Dowd, Birmingham; and M. Rathbone, Royal Free Hospital.

PART II.

*Anatomy.*—W. H. S. Burney, Guy's Hospital; C. H. Colley, Royal Free Hospital; C. G. Grey, St. Bartholomew's Hospital; J. C. Johnson, Middlesex Hospital; R. Moore, Birmingham; H. T. Roberts, St. Mary's Hospital; R. Spears, University College Hospital; and G. L. Walker, Leeds.

*Physiology.*—H. S. Burnell-Jones, Cardiff; W. H. S. Burney, Guy's Hospital; W. G. H. Cable, London Hospital; C. H. Colley, Royal Free Hospital; R. Moore, Birmingham; J. N. D. Paulson, St. Mary's Hospital; R. Spears, University College Hospital; and G. L. Walker, Leeds.

VICTORIA UNIVERSITY.—At the degree ceremony on April 1st the following candidates were presented and degrees were conferred upon them by the Vice-Chancellor, Dr. A. Hopkinson :—

*Bachelor of Medicine and of Surgery.*—John Patrick Bligh, University; Thomas Brown, Yorkshire; Robert Thornley Dobson, University; Arthur James Edmunds and Percy Thorp Harding, Owens; Ashley Scott Hopper and Charles Owen Jones, University; John Arnold Jones and Joseph Longworth, Owens; John Stanley Wardleworth Nuttall, University; Adolphus Harold Radcliffe, Yorkshire; William Bates Ramsden, John Allan Chisholm Roy, William Fletcher Shaw, and James MacGregor Skinner, Owens; Frank Sugden and John Cannidge Teasdale, Yorkshire; Alfred Francis Thompson and George Unsworth, Owens; Sydney Carter Wilkinson, Yorkshire; and Thomas Blakeway Wolstenholme and Martin Stanley Wood, Owens.

In the Faculty of Medicine the following candidates have passed in the subjects indicated :—

FINAL EXAMINATION.

*Part I.*—Fred Bailey, Yorkshire; J. B. Barnes and John Battersby, Owens; F. P. H. Birtwhistle, Yorkshire; J. A. M. Bligh, University; Alan Bovle and W. E. Brierley, Yorkshire; Howard Buck and Reginald Collier, Owens; W. E. Cooke, University; W. J. Cox, Owens; F. W. M. Greaves, Yorkshire; J. W. Hartley, Owens; S. L. Healt, Yorkshire; F. C. Hudson and F. H. Lacey, Owens; J. T. Lloyd, University; W. Y. Martin, Stuart Murray, G. G. Parkin, and F. G. Pell-Ilderton, Owens; J. N. M. Sykes, University; Herbert Tomlin, Yorkshire; A. M. Walker and E. M. Wilkins, Owens; and H. F. Woolfenden, University.

SECOND EXAMINATION.

*A. Anatomy and Physiology.*—Herbert Ainscow and T. M. Bride, Owens; A. W. Byrne, University; D. E. Core and C. M. Craig, Owens; John Dixon and R. G. Dixon, Yorkshire; W. R. Douglas, Owens; Harold Fearnley, Yorkshire; H. M. Fort and William George, Owens; *B. T. J. Glover, University; S. R. Gloyne and Alfred Gough, Yorkshire; P. J. Harris-Jones and Robert Haslam, Owens; R. A. Hendry, University; W. P. Hill, J. J. Hummell, and G. H. Hustler, Yorkshire; T. E. Jones, University; A. J. Landman and T. E. Lister, Yorkshire; J. B. Macalpine, S. E. McClatchey, J. D. Marshall, Robert Ollerenshaw, H. B. Pare, W. C. Parkes, Ethel M. Phillips, P. L. Pollard, and Joseph Rickards, Owens; C. H. Smith and F. H. Storey, University; Frederick Whalley, Yorkshire; S. R. Wilson, Owens; and Courtenay Yorke and Warrington Yorke, University.

*B. Materia Medica and Pharmacy.*—J. S. Crawford, Yorkshire; J. F. Edmiston and Douglas Elder, University; H. S. Harling, Yorkshire; R. A. Hendry, University; R. W. Higson, Owens; W. D. Higson, University; F. E. Kendall, Yorkshire; Roland Nightingale, Ethel M. Phillips, and James Smalley, Owens; C. N. Smith, Yorkshire; and Harold Spurway, A. C. Turner, Julia C. White, N. R. Williamson, and S. R. Wilson, Owens.

* Gained university scholarship.

TRINITY COLLEGE, DUBLIN.—At examinations held recently the following candidates were successful :—

*Diploma in Public Health, Part II.*—Albert L. Hoops, Francis W. Lamb, Kingsmill W. Jones, and John N. Laird.

GILLIES *v.* CUNNINGHAM.—In this case the plaintiff, who sued the defendant, a medical man, for a thousand pounds damages, was the widow of a patient who died during the administration of chloroform. The case having occupied two days, during which a great deal of interesting evidence was given, the jury returned a unanimous verdict for the defendant on all counts.

ALCOHOLIC POISONING.—An inquiry was held at East Anstey, Devon, on March 31st, into the cause of death of a girl, aged five years. It was stated that two days before her death the deceased and her sister, aged six years, had drunk the contents of a bottle of gin which contained one-third of a pint. The medical evidence was to the effect that death was due to alcoholic poisoning, and the jury returned a verdict accordingly.

ROYAL INSTITUTION.—The Friday evening discourse at the Royal Institution on April 3rd was delivered by Lord Rayleigh, the subject being the Surface Tension of Liquids. In addition to the familiar phenomena of the ascent of mobile liquids in narrow tubes and the formation of drops and soap-bubbles he discussed the rotation of small pieces of camphor floating on perfectly clean water, and showed that the addition of a mere trace of greasy matter checked the motion.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—The following is the prize list for the winter session, 1902–1903: Stoney Memorial Gold Medal in Anatomy: R. Bury. Descriptive Anatomy—Junior: D. Adams, first prize (£2) and medal; W. H. Carden, second prize (£1) and certificate. Senior: W. St. Leger Moorhead, first prize (£2) and medal; L. Lucas, second prize (£1) and certificate. Practical Anatomy—First Year: P. G. M. Elvery, first prize (£2) and medal; J. Murray, second prize (£1) and certificate. Second Year: T. A. Burke, first prize (£2) and medal; J. B. Kelly, second prize (£1) and certificate. Practice of Medicine—J. Parker, first prize (£2) and medal; A. N. Crawford, second prize (£1) and certificate. Surgery—C. A. Cusack, first prize (£2) and medal. Midwifery—R. Bury, first prize (£2) and medal; A. C. Adams, second prize (£1) and certificate. Physiology—J. Prendiville, first prize (£2) and medal; C. W. Greene, second prize (£1) and certificate. Chemistry—D. Adams, first prize (£2) and medal; W. H. Carden, second prize (£1) and certificate. Pathology—J. S. Sheill, first prize (£2) and medal; W. B. Loughnan, second prize (£1) and certificate. Physics—D. Adams, first prize (£2) and medal; W. H. Carden, second prize (£1) and certificate. The lectures and practical courses of the summer session will be resumed after the Easter recess on Monday, April 20th.

# Parliamentary Intelligence.

## NOTES ON CURRENT TOPICS.

*Housing of the Working Classes.*

MR. WALTER LONG hopes to be able to introduce the promised Bill on this subject shortly after the Easter recess. It is understood that it will for the most part amend existing legislation rather than introduce novel proposals in this connexion.

## HOUSE OF COMMONS.

THURSDAY, APRIL 2ND.

*Seizure of Pigs for Tuberculosis.*

Mr. FIELD asked the President of the Local Government Board whether he was aware that a number of pigs had been seized in London lately and confiscated because of alleged tuberculosis; and

whether he would take steps to prevent unnecessary seizures pending the issue of the report of the Commission on Tuberculosis.—Mr. LONG replied: My attention has been drawn to the seizure of carcasses of pigs in London which show signs of tuberculosis. The Royal Commission which reported in 1898 recommended that "in view of the greater tendency to generalisation of tuberculosis in the pig ..... the presence of tubercular deposit in any degree should involve seizure of the whole carcase and of the organs." Pending the report of the Royal Commission which is now sitting I am not prepared to advise local authorities to act otherwise than in accordance with this recommendation.

*Accidents in the Shipbuilding Trade.*

Mr. JOHN WILSON (Durham) asked the President of the Board of Trade whether he could say how many fatal and non-fatal accidents occurred in the shipyards in the United Kingdom in 1902 and the number of persons employed in the same employment during that year.—Mr. GERALD BALFOUR said: The number of accidents reported as having occurred in shipbuilding during 1902 was 10,987, of which 118 were fatal accidents. Of the non-fatal accidents 1070 were reportable to the certifying surgeon and 9799 reportable to the inspector only. These figures do not include accidents in a few incidental industries—principally in sawmills—which are carried on in shipyards. The returns of persons employed during 1902 are not yet ready, but, according to the last available returns, there were 150,727 persons employed in shipyards.

*The Treatment of Rabies.*

Colonel LOCKWOOD asked the Secretary of State for India whether the Indian Government had any reports affording a comparison between the results of the inoculations at the Pasteur Institute at Kasauli and those in the treatment of rabies by the vapour baths, appliances for which have already been supplied; and if so would he lay them upon the table.—Lord GEORGE HAMILTON replied: I have not received any reports on the subject from the Government of India, but I will ascertain from the Viceroy whether any information is available.

*The Housing of the Working Classes.*

This subject was discussed again on the motion for going into committee on the Civil Service estimates.

Mr. HAY submitted a motion declaring the administration of the Housing Acts to be unsatisfactory and defective.

Mr. LONG again defended his department, the Local Government Board. It was not its business, he said, to initiate schemes—that was the business of the local authorities who were acquainted with the local needs and circumstances—but when schemes had been initiated the Local Government Board gave to them its most careful consideration. The Local Government Board had done all in its power to check extravagance and unnecessary pretension in the style of buildings erected. It had endeavoured to provide for better sanitation and for the social comfort of the people who lived in the houses and for more cubic space and properly ventilated cupboards where food could be kept. These buildings were erected at the public expense and were intended for people who wanted solid and sanitary rather than ornamental buildings. Everything had been done by the department to assist local authorities in this difficult and responsible duty and therefore he did not think that any charge of neglect could be brought against it.

The motion was negatived without a division.

*Pistols Bill.*

This measure, promoted by private Members, was read a second time and referred to the Grand Committee on Law. It prohibits the sale or hire of pistols to children under 16 years of age and provides for all sales of pistols being registered, the register to be open to inspection by the police.

FRIDAY, APRIL 3RD.

*Position of Medical Referee under the Workmen's Compensation Act.*

Mr. BELL asked the Home Secretary whether he was aware that Dr. H. Langley Browne, the medical referee for the West Bromwich district, appointed by the Home Office under the Workmen's Compensation Act, 1897, is acting as medical adviser to the Great Western Railway Company in the case of a man named Ernest Steventon who is making a claim under the Workmen's Compensation Act; and whether he could take steps to secure that in any application by this workman for arbitration with respect to the compensation payable to him this medical referee should not be appointed to report on the nature and extent of the injuries sustained by the claimant.—Mr. AKERS-DOUGLAS replied: I have communicated with Dr. H. Langley Browne and he informs me that the statement in the question is correct, but that if occasion should arise for a report upon the case he quite understands that arrangements would have to be made for its being taken by another of the referees appointed for the district. He further informs me that in point of fact he has never been called upon to act in his capacity as medical referee under the Workmen's Compensation Act since his appointment in 1898. I have felt it my duty, however, to point out to him that the position which he holds of medical adviser to a railway company is not compatible with that of medical referee.

MONDAY, APRIL 6TH.

*Attention to the Teeth.*

Mr. WEIR asked the Secretary to the Board of Education, having regard to the fact that the Admiralty estimate that 10 per cent. of the recruits for the Navy are rejected on account of bad teeth, whether he would consider the expediency of arranging for dentists to visit State-aided schools so that the children of ten years of age and upwards may have facilities for obtaining advice as to the best means to be taken to preserve their teeth.—Sir WILLIAM ANSON replied: The Board will consider the propriety of communicating with local authorities on this subject, as it would appear to be one with which local authorities might most properly deal.

*Precautions against Trichinosis.*

Mr. O'MARA asked the President of the Board of Agriculture whether he was aware that outbreaks of trichinosis among swine had lately taken place in Denmark and Holland; that bacon and pork from these countries had lately been condemned in Smithfield Market as unfit for human food; and whether he had any reports as to the danger of trichinæ in bacon to the public health; and what steps, if any, he proposed to take to prevent the importation of bacon infected with trichinæ into the United Kingdom.—Mr. HANBURY replied: The last case of trichinosis in swine in Holland as to which we have any information occurred in 1900. We have observed no reports of the existence of the disease in Denmark. Pork of Dutch and Danish origin has recently been condemned in Smithfield Market as unfit for food, mainly on account of the presence of tuberculosis, but no case of trichinosis has been discovered in the city markets for the past 20 years although a special microscopic examination is made for the detection of trichinæ. It rests, however, with the Local Government Board and not with myself to take any further steps which may be considered necessary for the protection of the public health from the danger to which the hon. Member refers. I may state, however, that no case of trichinosis has been observed in this country for at least 16 years.

Mr. O'MARA asked the right hon. gentlemen whether he had any official reports showing what inspection of Danish or Dutch bacon for trichinæ takes place in the country of exportation; and, if so, whether he would lay them upon the table of the House.—Mr. HANBURY replied: In the case of Denmark regulations are in force under a law of 1897, which prohibits the exportation of swine flesh and other meat which has not been previously examined by an official veterinary inspector and certified to be sound and fit for human consumption. No specific reference is, however, made to trichinosis. In Holland trichinosis of swine is a scheduled disease under the Diseases of Animals Acts and provision is made for the inspection of swine and swine flesh with a view to the detection of the disease.

## BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent Garden, W.C.

Operative Surgery. By Herbert William Allingham, F.R.C.S., Surgeon to the Household of His Majesty the King; Surgeon in Ordinary to His Royal Highness the Prince of Wales; Senior Assistant-Surgeon and Lecturer on Operative Surgery at St. George's Hospital. Price 7s. 6d. net.

BECK, R. AND J., LIMITED, 60, Cornhill, E.C., and PERCY LUND, HUMPHRIES, AND CO., LIMITED, 3, Amen Corner, E.C.

Photographic Lenses: A Simple Treatise. By Conrad Beck and Herbert Andrews. Second edition. Price 1s. net.

BERGMANN, J. F., Wiesbaden. (F. BAUERMEISTER, Glasgow.)

Sexualleben und Nervenleiden. Die Nervösen Störungen Sexuellen Ursprungs, nebst einem Anhang über Prophylaxe und Behandlung der Sexuellen Neurasthenie. Von Dr. L. Löwenfeld, Specialarzt für Nervenkrankheiten in München. Dritte Bedeutend vermehrte Auflage. Price M. 6, or 6s.

Die Hamolysine und ihre Bedeutung für die Immunitätslehre. Von Dr. med. Hans Sachs, Assistent am Königl. Institut für Experimentelle Therapie in Frankfurt a.M. Sonderabdruck aus Lubarsch-Ostertags Ergebnissen der Pathologischen Anatomie. VII Jahrgang. Price M. 1·20, or 1s. 6d.

Die Technik der Lithotripsie. Vorlesungen von Prof. Dr. Felix Guyon, Chef-Chirurg. am Hôpital Necker in Paris. Mit Ermächtigung des Autors übersetzt und bearbeitet von Dr. Georg Berg, Frankfurt a.M., Correspond. Mitglied der Association française d'Urologie. Price M. 3, or 3s.

Die Chloroform- und Aethernarkose in der Praxis. Von Dr. Koblanck, Privatdocent an der Universität, Oberarzt der Königl. Univ.-Frauenklinik zu Berlin. Price M. 1·20, or 1s. 6d.

Die Reizungen des Nervus Sympathicus und Vagus beim Ulcus Ventriculi, mit besonderer Berücksichtigung ihrer Bedeutung für Diagnose und Therapie. Von Dr. med. Wilh. Plönies in Wiesbaden. Price M. 1·20, or 1s. 6d.

Chirurgie der Notfälle. Darstellung der Dringenden Chirurgischen Eingriffe. Von Dr. Hermann Kaposi, Assistenzarzt der Chirurgischen Klinik, Heidelberg. Price M. 5·30, or 5s. 6d.

BLACKWOOD, WILLIAM AND SONS, Edinburgh and London.

Open-air Treatment: its Significance and Some Practical Difficulties. By Isabella Mears, L.R.C.P. Irel. Price 6d. net.

CASSELL AND COMPANY, LIMITED, London, Paris, New York, and Melbourne.

Diseases of the Skin. An Outline of the Principles and Practice of Dermatology. By Malcolm Morris, Consulting Surgeon to the Skin Department, St. Mary's Hospital, London. New edition. Price 10s. 6d. net.

CHURCHILL, J. AND A., 7, Great Marlborough-street, London, W.

The Royal London Ophthalmic Hospital Reports. Edited by William Lang, F.R.C.S. Eng. Vol. xv. Part III. January, 1903. Price 5s.

The Physiology of Mastication and Kindred Studies. By J. Sim Wallace, M.D., D.Sc., L.D.S., Hon. Dental Surgeon, West End Hospital for Nervous Diseases. Price 1s. 6d.

A Handbook of Physics and Chemistry. By Herbert E. Corbin, B.Sc. Lond., M.R.C.S., L.R.C.P., Exhibitioner and Gold Medallist in Organic Chemistry at Inter M.B. Lond., and Archibald M. Stewart, B.Sc. Lond., Science Master of Brentwood School. Second edition. Price 6s. 6d.

F. A. DAVIS COMPANY, Philadelphia.

The Internal Secretions and the Principles of Medicine. By Charles E. de M. Sajous, M.D., Fellow of the College of Physicians of Philadelphia. Volume First (Physiology, General Pathology, General Therapeutics, Immunity). Price not stated.

GAY AND BIRD, 22, Bedford-street, Strand, W.C.

The Sayings of Jesus. Collected and arranged by Harry Roberts. Price 1s. net.

HEADLEY BROTHERS, 14, Bishopsgate Without, E.C., and Ashford, Kent.

The Transactions of the Hunterian Society, 1901-1902. Eighty third Session. Price not stated.

HODDER AND STOUGHTON, 27, Paternoster-row, E.C.

Nerves in Disorder. A Plea for Rational Treatment. By Alfred T. Schofield, M.D., &c., Hon. Physician, Friedenheim Hospital. Price 3s. 6d.

JOHNSON, R. BRIMLEY, 8, York-buildings Adelphi, W.C.

Proceedings of the Society for Psychical Research. Part XLV. Vol. xvii. February, 1903. Price 4s. net.

KIMPTON, HENRY, 13, Furnival-street, Holborn, E.C.

A Text-book of Pathology and Pathological Anatomy. By Dr. Hans Schmaus, Extraordinary Professor and First Assistant in the Pathological Institute, Munich. Translated from the Sixth German edition by A. E. Thayer, M.D., Instructor in Pathology in the Cornell University Medical College, New York. Edited with additions by James Ewing, M.D., Professor of Pathology in the Cornell University Medical College, New York. Price 21s. net.

Applied Surgical Anatomy, Regionally Presented. For the use of Students and Practitioners of Medicine. By George Woolsey, A.B., M.D., Professor of Anatomy and Clinical Surgery in the Cornell University Medical College. Price 21s. net.

MERCK E., Darmstadt.

Bericht über Neuerungen auf den Gebeiten der Pharmacotherapie und Pharmazie. Price not stated.

NAUD, C., 3, Rue Racine, Paris.

De la Glycérine; Physiologie, Thérapeutique, Pharmacologie. Par A. Catillon, Président Honoraire de la Société des Pharmaciens de 1re Classe de Paris. Price 4 francs.

Les Médicaments. Par le Dr. Alfred Martinet, Ancien Interne des Hôpitaux de Paris. Price 4 francs.

OLIVER AND BOYD, Edinburgh.

Reports from the Laboratory of the Royal College of Physicians, Edinburgh. Edited by Sir John Batty Tuke, M.D., and D. Noel Paton, M.D. Vol. viii. Price not stated.

PUBLISHING OFFICES, 17, Furnival-street, Holborn, E.C.

Flora and Sylva. A monthly Review for Lovers of Landscape, Woodland, Tree or Flower. Edited by W. Robinson, Author of "The English Flower Garden." Vol. i., No. 1. April, 1903. Price 2s. 6d. net.

SCHLESIER UND SCHWEIKHARDT, Strassburg i.E.

Vorlesungen über Allgemeine Geburtshülfe. Von Dr. Heinrich Bayer, a. o. Professor an der Kaiser-Wilhelms-Universität Strassburg. I. Band, Heft I. Entwickelungsgeschichte des weiblichen Genitalapparates. Price M. 8.

SELL'S ADVERTISING AGENCY, LIMITED, 167, Fleet-street, E.C.

Sell's Dictionary of the World's Press and Advertisers' Reference Book. 1903. By Henry Sell. Price 7s. 6d.

SPOTTISWOODE AND CO., LIMITED, 54, Gracechurch-street, E.C.

The Dentists' Register, 1903. Printed and published under the Direction of the General Council of Medical Education and Registration of the United Kingdom. Price 3s. 4d.

STUBER, A. (C. KABITZSCH), Würzburg.

Beiträge zur Klinik der Tuberkulose. Herausgegeben von Dr. Ludolph Brauer, a. o. Professor an der Universität Heidelberg. Band I., Heft 2. Price M. 3.50.

# Appointments.

*Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to* THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ANGUS, CHARLES, M.B., C.M. Aberd., has been appointed Medical Superintendent of Kingseat Asylum.

ASHTON, GEORGE, M.B., Ch.B. Vict., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Assistant Surgical Officer to the Manchester Royal Infirmary.

BLAKE, E. H., L.R.C.P. Irel., L.S.A. Lond., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

BRISCOE, JOHN CHARLTON, M.B. M.R.C.P. Lond., has been appointed Assistant Physician to the Evelina Hospital for Sick Children.

DALLY, J. F. HALLS, M.A., M.B., B.C. Cantab., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Assistant Resident Medical Officer to the Royal National Hospital for Consumption, Ventnor.

JACKSON, FRANCIS WILLAN, M.R.C.S., L.R.C.P. Lond., has been appointed House Physician to the West London Hospital.

LOW, ALEXANDER, M.B., C.M. Aberd., Senior Assistant in Anatomy at Marischal College, Aberdeen University, has been appointed Special Lecturer in Embryology.

MACLEOD, R. A., M.A., M.B., C.M. Edin., has been appointed Assistant Resident Medical Officer at Mill-road Infirmary, Liverpool.

MORRISH, WILLIAM J., M.B., L.R.C.P. Lond., M.R.C.S. Eng., has been appointed House Physician to the Brompton Hospital for Consumption.

PETRIE, I. M., M.B. Aberd., D.P.H. Lond., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

SHARPE, MARGARET, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Assistant House Surgeon to the Middlesborough Infirmary.

STUART, ESTHER M., M.B., C.M. Edin., D.P.H., B.Hy. Durham, has been appointed Female Medical Officer to the Newcastle-on-Tyne School Board.

SYMONDS, CHARTERS J., M.S. Lond., F.R.C.S. Eng., has been appointed Examiner in Surgery to the London University.

WALKER, ERNEST T. KEAY, M.B., C.M. Glasg., has been appointed Assistant Medical Officer to the Warneford Asylum, Oxford.

# Vacancies.

*For further information regarding each vacancy reference should be made to the advertisement (see Index).*

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £100, with board, residence, and washing.

BRIGHTON, ROYAL ALEXANDRA HOSPITAL FOR SICK CHILDREN, Dyke-road.—House Surgeon. Salary £80, with board, lodging, and washing.

CANCER HOSPITAL, Fulham, S.W.—House Surgeon for six months, renewable. Salary £70 per annum, with board and residence.

CHORLTON-UPON-MEDLOCK DISPENSARY, Manchester.—Resident House Surgeon, unmarried. Salary £120 per annum, with rooms and attendance.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Ophthalmic Surgeon. Also Dental Surgeon.

EAST SUSSEX COUNTY ASYLUM, Hellingly.—Senior Assistant Medical Officer, unmarried. Salary £300 a year, with board, lodging, washing, and attendance.

ESSEX AND COLCHESTER HOSPITAL.—Honorary Physician.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark.—House Physician, also House Surgeon. Salary £80 respectively, with board, residence, and washing. Also Assistant House Surgeon. Salary £70, with board, residence, and washing.

FARNBOROUGH URBAN DISTRICT COUNCIL.—Medical Officer of Health. Salary £60 per annum, with fees.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £20, with board and residence.

KIDDERMINSTER INFIRMARY AND CHILDREN'S HOSPITAL.—House Surgeon, unmarried. Salary £120, increasing to £150, with rooms and attendance.

KING'S COLLEGE, London.—Sambrook Medical Registrarship.

LEEDS PUBLIC DISPENSARY.—Junior Resident Medical Officer. Salary £100, with board and lodging.

LEICESTER INFIRMARY.—House Physician. Salary £100 per annum, with board, apartments, and washing. Also Surgical Dresser for six months. Honorarium £10 10s., with board, apartments, and washing.

MANCHESTER SOUTHERN AND MATERNITY HOSPITAL.—Resident House Surgeon. Honorarium at rate of £50 per annum and board.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Out-patient Department, Fitzroy-square, W.—Junior Resident Medical Officer. Honorarium £60.

NEWCASTLE-UPON-TYNE DISPENSARY.—Resident Medical Officer. Salary £250, with residence.

NORTH DEVON INFIRMARY, Barnstaple.—House Surgeon. Salary £80 per annum, with board, residence, and washing.

PADDINGTON-GREEN CHILDREN'S HOSPITAL, London, W.—House Physician; also House Surgeon for six months. Salaries at rate of 50 guineas a year, with board and residence. Also Physician to the Skin Department.

ROYAL MINERAL WATER HOSPITAL, Bath.—Resident Medical Officer (unmarried). Salary £100 per annum, with board and apartments.

ST. MARK'S HOSPITAL FOR FISTULA, &c., City-road, E.C.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent Garden, W.C.—House Surgeon for six months. Salary at rate of £100 a year, with board, lodging, and washing.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Clinical Assistants.

SUNDERLAND INFIRMARY.—House Surgeon. Salary £100, increasing, with board and residence.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.

WAKEFIELD, CITY OF.—Medical Officer of Health. Salary £250 per annum.

WESTMINSTER GENERAL DISPENSARY.—Honorary Dental Surgeon.

YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £110 a year, with board, lodging, and attendance.

# Births, Marriages, and Deaths.

## BIRTHS.

HARPER.—On April 2nd, at 94, Weston-park, Crouch-end, N., the wife of Peter Harper, M.B., C.M., M.A. Aberd., of a son.

KENT.—On March 28th, at Swiss Cottage, Dover, the wife of Charles A. Kent, M.D., of a son.

LASBREY.—On March 29th, at Constantinople, the wife of Frederick Oakley Lasbrey, M.B. Edin., of the Church Missionary Society, of a daughter.

WATERS.—On March 30th, at Southend-on-Sea, the wife of A. Clough Waters, M.B. Durh., J.P., of a son.

## DEATHS.

GIBSON.—On April 3rd, at his residence, Hillside, Cowes, James Edward Gibson, M.R.C.S., L.S.A., aged 70 years.

KELLOCK.—On the 3rd April, at 94, Stamford-hill, N., William Berry Kellock, M.D., F.R.C.S., aged 82 years.

PRIESTLEY.—On March 31st, at Lee-on-the-Solent, Hants, James Priestley, M.D., aged 36 years.

TAIT.—At 10, Ellerdale-road, Hampstead, on March 21st, Edward Wilmshurst Tait, M.R.C.S., L.S.A., formerly of Highbury.

***N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.***

# Notes, Short Comments, and Answers to Correspondents.

## THE UNCONTROLLED SALE OF POTABLE SPIRITS.

*To the Editors of* THE LANCET.

SIRS,—The annotation under the above heading in THE LANCET of March 21st, p. 820, contains the following statement: "There is a vast difference between the price of grain spirit and genuine malt whisky, but the public pays the same whichever article it gets."

This is such an extraordinary error and constitutes such a serious charge against a great and honourable trade, that it ought not to be allowed to pass unchallenged. The article appears to be written under the impression that "whisky" is a commodity sold at one fixed and unalterable price, like a bottle of patent medicine, the public being at the mercy of the vendor as to the character of the article which he receives. The quality of the whisky which a customer buys depends on three conditions: Firstly, the price he is prepared to pay for it; secondly, his own ability at judging between a good and a bad sample; thirdly, the business standing of the firm he buys it from. Whisky is sold at all conceivable prices, according to its alcoholic strength, its age, and its quality. Cheap whisky may be excellent in quality, its price being merely reduced by a low alcoholic strength. Old whisky may be execrable and undrinkable, in spite of its age, if it was badly made to begin with, it being a well-known fact that the commoner whiskies are far more wholesome new than old, as the inferior qualities become more prominent the longer they are kept. On the other hand, whisky that was good to begin with goes on getting better.

When a customer goes to his merchant, or when he goes to a bar for a drink, he has the choice of probably a dozen different samples of various prices and qualities. He can have a pure grain whisky at 16*s.* or 18*s.* a gallon or he can have a blend of grain and malt at 20*s.* or 22*s.*; he can have a pure malt whisky at about 20*s.* or one seven or ten years old at 24*s.* or 28*s.* It is a matter only for his taste and his pocket. If he is dissatisfied with the samples shown him he has his own remedy by transferring his custom to another shop. A trader in any business must supply what his customers ask for, and at the present time the vast majority of the public infinitely prefer blended whisky to any other. Place before any average consumer in England two samples of whisky, the one of pure malt and the other a blend of malt and grain, and let him give his opinion of them without knowing which is which. 99 out of 100 will prefer the flavour of the blend, and if the latter also has the attraction of being a shilling or two cheaper per gallon the slight disadvantage of a difference of age is not likely to have much weight with him. It is obviously unfair, therefore, to blame either the merchant or the distiller for what is entirely beyond their power to control; and it is unjust to loosely accuse of making huge profits a body of men who contribute every year nearly £40,000,000 out of their receipts to our national exchequer.

I am, Sirs, yours faithfully,

Gloucester, March 21st, 1903. ROLAND MOTT.

*** Mr. Roland Mott will find the following quotations for all-malt whiskies, grain whiskies, and foreign spirits respectively in the trade journals. We select the products of 1900 throughout. Grain whisky, 1*s.* 5*d.* per original bonded liquid gallon; Lowland malt, 2*s.* 9*d.*; Highland malt, 4*s.* 6*d.*; foreign spirits, 7*d.* to 11*d.* per gallon on the quay. In face of these facts his letter is not worth our consideration. Doubtless the public are grateful to the blender for studying so closely their taste, but blending is clearly done at their expense, or, if not, why is a cheaper spirit used for the purpose?—ED. L.

## TOWNS AND VILLAGES WITH CURIOUS NAMES.

THERE are some places with curious names in the United Kingdom, as will be seen on reference to the Post Office Guide. The following places with names significant to our readers will be found in the issue for this year:—Hospital, Orphan Homes, Hydropathic, The Ward, Bath, Nursling, The Chart, Great Chart, Cotton, Sheet, Wool, Screen, Shelf, Pill, Glass, Swallow, Lancing, Sound, Salt, Steel, Rum, Burn, Gravel, Stones, Scales, Mumps, Knocks, Great Snoring, Healing, Back, Hand, Ham, Leggs, Eye, Tongue, and Coldbackie Tongue—which last sounds like complicated symptoms in Pidgin English.

## A DEFECT IN BICYCLE SADDLES.

*To the Editors of* THE LANCET.

SIRS,—The subject to which I would draw the attention of the profession, though not strictly a medical one, is nevertheless of importance in that it is a duty which devolves upon us to caution our patients when it is noticed that they are using badly-constructed saddles. The point which I wish more particularly to draw attention to on the present occasion is that of the defective fenestration of the ordinary saddle in use. At the spot where the tender parts—the urethra in the male and the vulva in the female—come into contact with the saddle an ornamental slit is made which is no better than no opening at all, with the consequence that these tender parts, which were never intended for the purpose, have to share with the two ischia in bearing the weight of the body, which ought not to be and must tend to produce ultimately mischief to the urethra and prostate. The remedy is effectual and simple and is effected by converting the present slit into an opening about three centimetres in width, making the back portion slightly wider than the front, which will not in the least weaken the saddle. The length of the usual slit need not be increased. I have been in the habit for years of using a Brook's B 91 treated in this manner which has resulted in the greatest comfort in riding, and after becoming accustomed to its use the discomfort to the perineum on riding a saddle with the usual absurd slit is immense. Until manufacturers are brought to see the necessity of paying attention to the above defect cycling patients ought to be warned that mischief is likely to accrue and shown how to remedy it. Patent saddles there are, and ostensibly for relieving pressure upon the perineum, but not one, in my opinion, is equal to the ordinary stretched leather saddle in one piece, such as B 91, treated as above.

I am, Sirs, yours faithfully,

April 6th, 1903. W. W. HARDWICKE, M.D. St. And.

## QUOTATIONS FROM THE LANCET.

IN THE LANCET last week we published an annotation discussing the Medical Register for 1903. We have since read in the *Evening News* of April 3rd a jumbled and unacknowledged version of our remarks, which were quoted as follows:—

> "In the Medical Register for 1903 the foreign list, which was a new feature last year, and then contained only one name, now is given a table showing the total number of medical men whose names are included in the Register on December 31st in each year."

In the circumstances we are glad that the *Evening News* did not state whence such information was derived, but it is only right to say that we believe that it usually does acknowledge the source of news taken from our columns. Perhaps when the lines necessary to make sense of the passage that we have quoted were omitted the acknowledgment that our review of the Register was being used was left out by the same accident.

## WRAPPERS FOR FOOD.

ONE or two correspondents have recently communicated with us deprecating the wrapping of food in newspapers. We are not able to quote any proceedings in this country that have been taken against the purveyors of food for this practice, but it may be interesting to record that in the *Daily Mail* of March 31st last the following statement occurs:—

> "For wrapping up meat in a newspaper for a customer a Vienna butcher has been fined 16*s.*"

## A STERILISING LAMP FOR VACCINATORS.

WE have received from the Association for the Supply of Pure Vaccine Lymph, 14A, Great Marlborough-street, London, W., a little spirit lamp, the idea of which, as we are informed, was suggested by Mr. E. S. Worrall of Crouch End. It consists simply of a nickel-plated metal tube three-quarters of an inch long, three-eighths of an inch in diameter, and having a closely fitting lid. It contains cotton-wool wetted with methylated spirit and "will sterilise about 12 points spread over two days." The Association supplies these lamps to their customers free of charge.

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*Conjoint.*—The question will never be solved by a postcard *plebiscite*, while it is doubtful if the University of Durham could possibly accede to a request placed before it in such a manner. Our correspondent should get the permission of the consulting physician whose name he mentions before proposing to inflict such heavy clerical toil upon him.

*Anon.*—We are obliged to our correspondent for sending us the papers in connexion with the pestilent quack named Wilson, whose proceedings have before now been noticed in our columns.

*J. L. B.*—We do not see that there is any reason for assuming that the medical man was privy to the publication of his letter.

*M.B. (Rock Ferry)* has omitted to send us his name, without which we are unable to publish his communication.

*Dr. James Campbell* has omitted to say where and when the address in question was delivered.

*E. T. W.*—The appliances in question are absolutely useless.

**COMMUNICATIONS not noticed in our present issue will receive attention in our next.**

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**During the week marked copies of the following newspapers have been received:** *Daily Despatch (Manchester), Dublin Evening Mail, Warrington Guardian, Yorkshire Post, Sussex Daily News, Belfast News Letter, Birmingham Post, Aberdeen Free Press (Weekly), Kilmarnock Standard, Brighton Gazette, Surrey Advertiser, Bristol Mercury, Dublin Express, Morning Post, Hereford Mercury, Daily Graphic, Sanitary Record, Local Government Chronicle, Mining Journal, Hertfordshire Mercury, Burton Chronicle, Walsall Observer, &c.*

## METEOROLOGICAL READINGS.

*(Taken daily at 8.30 a.m. by Steward's Instruments.)*

THE LANCET Office, April 8th, 1903.

| Date. | Barometer reduced to Sea Level and 32° F. | Direction of Wind. | Rainfall. | Solar Radiation in Vacuo. | Maximum Temp. in Shade. | Min. Temp. | Wet Bulb. | Dry Bulb. | Remarks at 8.30 A.M. |
|---|---|---|---|---|---|---|---|---|---|
| April 2 | 29·82 | N. | 0·19 | 47 | 45 | 44 | 42 | 45 | Overcast |
| ,, 3 | 30·09 | S.W. | 0·18 | 92 | 56 | 38 | 39 | 40 | Hazy |
| ,, 4 | 29·84 | WSW | 0·10 | 74 | 55 | 40 | 49 | 50 | Overcast |
| ,, 5 | 30·01 | W. | 0·08 | 92 | 55 | 40 | 44 | 46 | Cloudy |
| ,, 6 | 30·06 | S.W. | ... | 89 | 57 | 43 | 44 | 47 | Hazy |
| ,, 7 | 29·78 | S.W. | ... | 95 | 56 | 47 | 49 | 52 | Cloudy |
| ,, 8 | 30·05 | N. | 0·05 | 95 | 53 | 40 | 41 | 45 | Cloudy |

# Medical Diary for the ensuing Week.

## OPERATIONS.

### METROPOLITAN HOSPITALS.

**MONDAY (13th).**—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

**TUESDAY (14th).**—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.) London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.).

**WEDNESDAY (15th).**—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M).

**THURSDAY (16th).**—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat, (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

**FRIDAY (17th).**—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.).

**SATURDAY (18th).**—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

## SOCIETIES.

**WEDNESDAY (15th).**—ROYAL MICROSCOPICAL SOCIETY (20, Hanover-square, W.).—7.30 P.M. Mr. C. F. Rousselet: Exhibition of Mounted Rotifers of the Genus Brachionus. 8 P.M. Paper:—Mr. E. B. Stringer: On a New Method of Using the Electric Arc in Photomicrography.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

**TUESDAY (14th).**—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. H. Campbell: Clinique. (Medical.)

**WEDNESDAY (15th).**—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Clarke: Clinique. (Surgical.) 5.15 P.M. Dr. H. Campbell: On Cerebral Softening.

**THURSDAY (16th).**—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M. Mr. J. Cantlie: The Anatomy, Common Ailments of the Liver, and their Surgical Treatment.

**FRIDAY (17th).**—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. R. Lake: Clinique. (Ear.) 5.15 P.M. Dr. J. M. H. MacLeod: The Histological Effects of the Finsen Light and X Rays.

## EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

*It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.*

*Lectures, original articles, and reports should be written on one side of the paper only,* AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

*Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.*

*We cannot prescribe or recommend practitioners.*

*Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."*

*Letters relating to the publication, sale and advertising departments of* THE LANCET *should be addressed "To the Manager."*

*We cannot undertake to return MSS. not used.*

## MANAGER'S NOTICES.

### THE INDEX TO THE LANCET.

THE Index to Vol. II. of 1902, which was completed with the issue of Dec. 27th, and the Title-page to the Volume, were given in THE LANCET of Jan. 3rd.

### VOLUMES AND CASES.

VOLUMES for the second half of the year 1902 are now ready. Bound in cloth, gilt lettered, price 12*s.*, carriage extra.

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Y.—Yorkshire College, Leeds, Dean of.

Z.—Messrs. C. Zimmermann and Co., Lond.

## Letters, each with enclosure, are also acknowledged from—

A.—Mr. E. Aylward, Hunshaugh; A. D. J.; A. K.; A. B. S.

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# The Lumleian Lectures

ON

# INFECTIVE ENDOCARDITIS MAINLY IN ITS CLINICAL ASPECTS.

*Delivered before the Royal College of Physicians of London on March 26th and 31st and April 2nd, 1903,*

BY T. R. GLYNN, M.D., F.R.C.P. LOND.,

PROFESSOR OF MEDICINE IN UNIVERSITY COLLEGE, LIVERPOOL; CONSULTING PHYSICIAN TO THE LIVERPOOL ROYAL INFIRMARY.

## LECTURE II.[1]

*Delivered on March 31st.*

MR. PRESIDENT AND GENTLEMEN,—In the latter part of my last lecture I directed your attention to certain factors in the etiology of infective endocarditis. I pointed out that the disease was commoner in males than in females; that it was prone to attack the debilitated, the intemperate, and the cachectic; that it followed anæmia, parturition, Bright's disease, pneumonia, and rheumatism; and, lastly, that it was very frequently associated with antecedent sclerotic changes in the endocardium. The endocarditis originated in a recognised infective focus in seven of my cases—that is, 11·4 per cent.—and followed parturition in four. The first group is composed of a case of whitlow and phlebitis, one of varicose ulcer and phlebitis, one of periostitis, one of erysipelas of a leg following puncture, one of abscess of the axilla, and one of otitis media. Pneumonia preceded endocarditis in 7 per cent. of my cases, bronchiectasis in two instances, and phthisis in one. In 16 per cent. the disease was associated with an existing rheumatic attack.

In the great majority of my cases the mode of entrance of the pathogenic organisms—that is, the origin of the infective disorder—could not be ascertained. In these circumstances the bacteria must have insinuated themselves into the blood at some point on one of the two great mucous tracts, intestinal or respiratory. There is evidence that bacteria are continually entering the blood, since by cultural methods they can often be obtained from the organs of healthy animals. The microbes derived from the intestines are probably in some degree rendered inert by the liver, so that it is only when they are virulent or numerous or when the vitality of the system is depressed that they are capable of producing disease; but infective endocarditis, apparently originating in disorders of the chylopoietic system, is not uncommon. It has followed inflamed hæmorrhoids, dysenteric and typhoid ulceration, gall-stones, cirrhosis of the liver and affections of the biliary duct, and cancer of the stomach and other parts of the alimentary tract. Moreover, cases of infective endocarditis are recorded originating in infective organisms the habitat of which is the intestines, as by the bacillus coli. There was no evidence in any of my cases indicating that the infection had originated in a lesion of the abdominal viscera. It therefore seems probable that the micro-organisms in these cases of obscure infection entered by the respiratory passages or oral cavity. It is likely that microbes more commonly reach the heart by way of the lungs than by way of the intestines; no great organ is interposed as a barrier between the air passages and the heart. Though inflammation of the lungs preceded the endocarditis in only 7 per cent. of my cases, in a considerable number (17 per cent.) there was evidence of pulmonary trouble in the form of bronchitis and emphysema with profuse expectoration, and as many of my patients suffered from chronic heart disease with defective compensation there were more or less bronchitis, passive congestion, and œdema of the lungs, conditions which would tend to lower the resistance of the lungs to bacterial invasion. Buchner[2] has demonstrated that certain kinds of microbes can make their way through the pulmonary epithelium without the intervention of any mechanical lesion and can enter the circulation through the lymphatics, and Viti[3] has actually produced an infective endocarditis in animals by the introduction of micro-organisms into the lungs. It is quite likely, therefore, that pathogenic organisms may gain an entrance into the circulation at some point of the respiratory area without localising themselves there primarily or at least without determining a lesion capable of giving rise to pronounced local phenomena. An infective endocarditis originated in this stealthy way would necessarily appear to be of primary origin.

The pathogenic organisms found in the mouth and adjoining cavities are recognised agents of infection, and cases of infective endocarditis are reported to have followed abrasions of the lips, inflammation of the tonsils, and diseased conditions of the mucous membrane of the nasal sinuses and middle ear. Netter succeeded in producing acute endocarditis in rabbits by inoculating them with an organism obtained from human saliva identical, he believes, with the pneumococcus. I have met with one example of infective endocarditis originating in a primary inflammatory lesion of the middle ear and exhibit a drawing[4] of the mitral cusps implicated in the disorder. The subject of the lesion was admitted in a state of stupor and high fever and died in a day or two. After death the cavity of the tympanum and the mastoid cells were found to be filled with a brownish viscid fluid; a few patches of pneumonic consolidation existed in the lungs and the mitral valves were the seat of growths occupying the edges of contact; the cusps were slightly thickened at their margins in consequence of an old affection of the mitral orifice allowing some regurgitation. The patient succumbed to a general infection by the pneumococci before the secondary focus on the endocardium had time to become pronounced. The late Dr. A. Barron, pathologist to the Liverpool Royal Infirmary, found pneumococci in the exudation in the temporal bone, and also in the vegetations on the mitral valve. It is likely that micro-organisms may gain an entrance into the circulation through the mouth when there is a gingivitis or a stomatitis. In several of my patients the gums and teeth were in a most unhealthy condition, and in one gangrenous stomatitis developed a few days after admission.

I may briefly notice certain points in relation to the distribution of the infective foci on the endocardium which seem to have practical bearings. Some of the illustrations exhibit mycotic lesions on the ventricular surface of the anterior mitral cusp, a common site when infective mischief is developed in association with aortic incompetence. The position of the inflammatory process is determined by the impact of the regurgitant stream from the aorta. The lesion of the aortic valves which occasions the mycotic mischief on the anterior mitral cusps is not necessarily infective in character. In two cases out of 13 the cusps are simply sclerosed and in another the infective excrescences on the aortic segments have become calcareous and obsolescent. In one instance the localisation of the infective process on the anterior mitral and also on the aortic cusps seems to have been determined by degeneration of the aorta and the bacterial invasion of its diseased walls; the septic mischief then descended into the heart and implicated its valves owing to the aortic incompetence induced by dilatation. Aortic incompetence seems to be responsible for the perforation of the mitral cusps in the four cases where it occurred.

The infective endocardial lesions were distributed as follows: the aortic and mitral valves were involved in 21 cases, the aortic in 10, the mitral in 15, and the endocardium of the ventricle alone in one. The right side of the heart was involved in six instances: in one the tricuspid, mitral, and aortic valves were implicated; in two others the tricuspid and mitral (the patient in one of these cases suffered from pneumonia and chronic phthisis and streptococci were found in the vegetations); in a fourth, a case of malformation, the tricuspid and pulmonary valves; in a fifth, Dr. J. Hill Abram's case of pulmonary stenosis, the pulmonary artery; and in a sixth the pulmonary valves. The affection in the last two cases had in one instance followed pneumonia and in the other periostitis. In one case there was evidence of a healed infective lesion of the tricuspid valve where large calcareous masses of about the size of peas were situated upon the borders of the curtains.

Four of my drawings exhibit congenital defects of the heart. In two the aortic valves are composed of two segments only. One of these is the case of healed endocarditis

[1] Lecture I. was published in THE LANCET of April 11th, 1903, p. 1007.

[2] Annales de l'Institut Pasteur, January, 1888.

[3] Atti del Academia dei Fisiocritici di Siena, serii IV., vol. 2, 1880.

[4] Dr. Glynn exhibited water-colour sketches and drawings in illustration of many of the conditions alluded to.

already referred to; in the other, a huge fungating mass is attached to one cusp obstructing the orifice of the aorta. The patient, a man, aged 48 years, had recently suffered from rheumatism and for some years from chronic bronchitis and emphysema. Diarrhœa set in three weeks before he entered the hospital and he was pale and wasted. There were double murmurs at the base of the heart and the pulse tracing exhibited the characteristics of aortic obstruction. The urine contained blood and albumin. He died in four days and during the last three his temperature was subnormal.

Another drawing exhibits congenital stenosis of the pulmonary cusp, with a fungating mass in the artery beyond the valves. The subject of this infection entered the Liverpool Royal Infirmary under the care of my colleague, Dr. Hill Abram, suffering from double pneumonia. There was a loud systolic murmur most marked at the pulmonary area. On the ninth day a partial crisis occurred, but subsequently the pyrexia assumed a distinctly hectic type. Some rose-coloured spots, fading on pressure, appeared on the abdomen and there was marked leucocytosis, 14,000 per cubic millimetre. The serum reaction was negative. Streptococci were cultivated from the blood and anti-streptococcic serum was injected several times without benefit. The spleen became palpable, the urine remained normal, and gastro-intestinal troubles were absent. The patient remained in much the same condition for about ten weeks. Epileptiform fits occurred the day before death, in one of which she died. The cause of death was cerebral hæmorrhage.

Two other cases of congenital stenosis of the pulmonary valves which I have met with were associated with tuberculosis of the lungs and not with infective endocarditis. In one case an imperfect ventricular septum with a supernumerary septum in the right ventricle was complicated with infective endocarditis. The infective foci developed on the right side of the heart, on the pulmonary and tricuspid segments, on the border of the interventricular foramen, and on the edges of an orifice in the abnormal septum in the right ventricle. The subject of this affection, a man, aged 33 years, enjoyed good health up to six months before admission, when he began to suffer from shortness of breath and palpitation. For six months he was under treatment, with irregular pyrexia, diarrhœa, and sanguineous urine. He died in convulsions apparently caused by a hæmorrhage into the head of the pancreas. Dr. T. B. Peacock,[1] referring to congenital malformation characterised by a supernumerary septum of the right ventricle, states that "the opening by which the portions of the ventricle communicate often consists of a firm cartilaginous ring and not infrequently displays old or recent deposits of lymph." It is evident that the deposits of lymph here described were due to an infective endocarditis developed in circumstances precisely similar to those in my case. In the majority of my cases the infective endocarditis was of the subacute or chronic form and the lesions were, as a rule, characterised by the presence of exuberant vegetations accompanied sometimes with erosions, ulceration or perforation of cusps, and rupture of chordæ tendineæ.

The pathological aspect of infective endocarditis must not occupy much of my attention, but I may point out that the vegetations in the disease are usually of considerable size and at times form fungating masses. When recent they are soft, friable, and easily detached, pale pink in colour, or more rarely somewhat green. The old vegetations are white, opaque, and firm, having become fibrous or calcareous. Recent hæmorrhagic thrombi may adhere to either form of vegetation. In acute cases the excrescences on every part of the endocardium are of similar colour and consistence; in many chronic cases old as well as recent growths are present, an indication that the inflammatory lesion has healed in one direction while it has extended in another. Innumerable bacteria are to be discovered on the surface of the recent vegetations, while on the old few or no microbes are to be seen, or if visible cannot be cultivated. In the one the morbid process is still active; in the other it is suspended, the microbes are perishing, and the growth is becoming quiescent.

[Here Dr. Glynn handed round drawings exhibiting a healed infective focus on the aortic valves, the cusps being covered with calcareous growths, while the mitral valves were the seat of a recent cluster of vegetations.] The subject of these lesions presented the symptoms of infective endocarditis. His illness was of six months' duration and commenced with pain and swelling of the knees, and in the hospital was characterised by pyrexia, anæmia, diarrhœa, and great enlargement of the spleen, the organ forming a tumour and weighing 2 pounds 2 ounces. Staphylococci were found in the blood during life and in the vegetations after death. The local condition indicated that at one time he was on a fair way to recovery, the aortic vegetations having become calcareous and innocuous, excepting in so far as they embarrassed the action of the valves. In a heart obtained from a patient who was under the care of my colleague, Dr. Hill Abram, lesions of much the same character were shown. The patient, a female, aged 30 years, entered the Liverpool Royal Infirmary with symptoms pointing to mitral stenosis, bronchitis, and slight renal trouble; for six days her temperature was normal, but on the seventh day, concurrently with the development of cerebral symptoms, it rose to 101·6° F. She died on the next day, the fatal termination being due to cerebral hæmorrhage. The mitral valve was the seat of sclerotic degeneration, causing stenosis, and there was also evidence of an ancient infective endocarditis in the rupture of certain chordæ tendineæ and in the calcareous excrescences on the cusps and on the free extremities of the detached chords. There was also an indication that the infective process had been rekindled in the presence of a small mass of vegetations on the aortic cusp of the mitral valve. The recent focus of disease was probably in some way responsible for her death from cerebral hæmorrhage, though no embolism was discovered. Streptococci were found in the recent vegetations, but none were seen in the calcareous excrescences. In another drawing the aortic cusps, two only in number, are concealed by large angular masses, which were gritty, friable, and calcareous, and in my opinion had at a former period been the soft vegetations of infective heart disease. The specimen was obtained from a man, 48 years of age, who stated that he had never suffered from rheumatism but had been troubled by shortness of breath on exertion for many years; three years ago he was laid up with pneumonia and was many months ill and had been more breathless since that time. He attributed his fatal illness to a strain and the necropsy confirmed his opinion, as one of the diseased cusps was torn and everted. It is possible that the attack of pneumonia had been followed by an infective endocarditis of the aortic valves. Evidence that this healing process may be complete and general is to be found. In one specimen I have seen indications that an ancient destructive process had ruptured and demolished many of the chordæ tendineæ, so that two only remained; the parted ends of one or two of these chords are attached to the anterior mitral cusp; on the anterior part of the free border of this cusp are roundish masses of about the size of large peas entirely composed of calcareous matter, apparently vegetations that had undergone degeneration. The patient from whom the specimen was obtained presented the ordinary symptoms of chronic valvular trouble aggravated by disease of the kidneys. Little was known of his past history.

The following case I watched for 19 years. At 14 years of age, during an attack of rheumatism, a diffuse aneurysm developed spontaneously in the forearm of the patient. The necessary surgical measures were adopted by Mr. Rushton Parker with a successful result, but, as his temperature remained high, and as he exhibited signs of heart disease, he came under my care. The case was considered to be one of infective endocarditis. At the end of two months the pyrexia declined, his general condition improved, and he left the hospital with the signs of mitral regurgitation. During the next 19 years he frequently came to the hospital to show himself, and for 14 years he kept pretty well; then aortic regurgitation developed and the heart became much dilated. During the next five years he was repeatedly in the hospital; at last he died somewhat suddenly after suffering agonising pain in the chest and back. On the ventricular surface of the anterior mitral surface of the anterior mitral cusp were several round calcareous masses, indications probably of the site of former infecting vegetations; the heart was greatly dilated and the aortic walls were abnormally thin; death was caused by rupture of the inner coat of the aorta and the development of a dissecting aneurysm, the blood separating the coats of the vessel as far as its bifurcation.

At a meeting of the Royal Medical and Chirurgical Society

[1] Malformations of the Human Heart, p. 60.

on April 22nd, 1902, Dr. William Ewart and Mr. A. S. Morley brought forward two cases which they considered seemed to show "that although the late consequences of malignant endocarditis might lead to death changes of repair might be proceeding at the original seat of the disease." Harlitz collected 33 cases of infective endocarditis and ten cases of what he records as examples of the healed disease. It must therefore be admitted that the vegetations in infective endocarditis may, like tubercles, become obsolescent, and that such an alteration, if at all general, as it involves the destruction of the infective agents, is associated with a diminution of the septicæmia. Evidence of a tendency to repair is occasionally present even in cases of an ulcerative type. Dr. Theodore Fisher[6] refers to two cases of infective endocarditis with post-mortem appearances indicative of a tendency to repair. In one "vegetations characteristic of the disease were present on one-half of the anterior segment of the aortic valve and the other half of the valve had almost entirely disappeared, the narrow band that remained having a perfectly healing edge; about a third of the right posterior edge had almost disappeared, but this also showed a smooth healed edge." The other case presented similar appearances.

In the heart of a man, aged 36 years, there was, I believe, evidence in the post-mortem appearances that he had at one time suffered from acute infective endocarditis of the aortic valves. These structures were congenitally defective, there being two cusps only; both segments were much scarred and beneath one of them was a tunnel with callous walls marking the site of an ancient perforation. In the neighbourhood of this passage were small calcareous masses and in other places vegetations of recent date were situated. The endocarditis probably originated in an attack of rheumatic fever at the age of 12 years, when he was in bed three months. He died 24 years afterwards with the ordinary symptoms of chronic heart disease.

[Here Dr. Glynn exhibited drawings designed to show endocardial vegetations of another description in order that they might be contrasted with the growths characteristic of the infective disease.] These growths are the very minute seed-like granulations of pink or whitish grey colour, so frequently seen on the free edges of valves and other parts of the endocardium exposed to exceptional friction by the blood current. When recent, they seem to be formed of minute thrombi; when older, of connective tissue; and in an intermediate stage minute fragments of thrombus adhere to the summit of the fibrous granulations. I examined many of these vegetations some years ago without finding any micro-organisms, and recently Dr. E. E. Glynn has repeated the investigation, using the newer methods of staining, with a similar result. These seed-like growths are found on the endocardium when the orifices of valves are dilated or their segments degenerated in those who have succumbed to various disorders. They do not appear to be associated with a rheumatic or with any particular constitutional taint. They are more likely, in my opinion, to be the result of a low form of inflammatory reaction excited by mechanical irritation than to be due to bacterial infection. They are found on the edges of the tricuspid valves in the regurgitation associated with emphysema. In another case they are situated on the mitral valves, in the neighbourhood of an old vegetation of considerable size, which by its presence had interfered with the closure of the cusps and led to regurgitation. In a case of aortic incompetence they are exhibited on the anterior mitral cusp immediately below the aortic valve. They are also found on the free margins of sclerosed valves and in the case of a sarcomatous tumour of the heart they are established on the endocardium immediately over the new growth. [Here Dr. Glynn handed round drawings exhibiting the small exocardial granules frequently situated on the distended cavities of the heart and formed under the same conditions as the so-called "milk spots."] These granules and the minute seed-like excrescences sometimes apparent on the diaphragmatic surface of a liver that has been the seat of pulsation present in some way a likeness to the endocardial growths just referred to.

Opportunities of obtaining specimens of acute rheumatic endocarditis are rare. The vegetations resemble those just described in their size but differ from them in colour and consistence, being greyish and soft, and this is the character so far as I have had an opportunity of observing in fatal cases of rheumatic inflammation of the valves—I mean that the vegetations are not usually large and fungating as they are sometimes stated to be. A specimen obtained from a man who died from dropsy and erysipelas of the leg following puncture exhibits the small granulations of, I believe, a very early infective endocarditis. The inflammation of the limb was of a month's duration; the small vegetations were situated on the edges of contact of the mitral and aortic cusps and were quite unlike the granulations just described, both valves being decidedly sclerosed. It has been pointed out by Feltz,[7] Le Breton,[8] Osler, and others that perfectly sound valves may be implicated in infective endocarditis and that the lesion is usually of an ulcerative character and the symptoms malignant in type. Two of my drawings exhibit serious destructive changes of valves presenting no sign of chronic disease. The affection in the subjects of these lesions followed an acute course, terminating fatally in less than a month. The first, a male patient, was 46 years of age, an engineer in a hot factory, with no history of rheumatism; he had suffered from breathlessness and swelling of the feet for some weeks and from loss of appetite and sweating at night for a month; he was pale and emaciated, his fingers being clubbed; his temperature was from 103° to 104° F.; there were petechiæ on the surface; and his urine was albuminous. His death occurred suddenly after he had been in the hospital 24 hours. The aortic cusps were concealed by a mass of vegetations and the anterior mitral cusp was perforated. The second, a female patient, was 24 years of age; she entered the hospital complaining of pains in the joints and vomiting of seven days' duration. Her temperature was of an irregular type; there was a presystolic murmur at the apex; later a musical systolic murmur was audible all over the præcordium. Evidence of embolic obstruction of a posterior tibial artery occurred, and a day or two afterwards she became hemiplegic and comatose, dying from cerebral softening. A considerable portion of the free border of the anterior mitral cusp was separated by ulceration from the rest of the valve. The lungs were in a pneumonic condition.

Small soft vegetations of an infective character developing a few days before death from a terminal infection are occasionally found in association with chronic heart disease. They are of pathological, rather than of clinical, interest.

Before considering the purely clinical aspects of infective endocarditis it is necessary to refer to the phenomena of embolism and infarctions. An analysis from the Royal Infirmary post-mortem reports on the frequency of infarctions in the lungs, spleen, and kidneys in 64 consecutive cases of infective and 64 consecutive cases of simple chronic endocarditis, excluding fatty heart and dilatation of the heart

*Analysis of 64 Consecutive Cases of Infective Endocarditis and 64 Consecutive Cases of Simple Endocarditis, excluding Fatty Heart and Dilatation of the Heart secondary to Emphysema or Chronic Nephritis. In Five Cases of Simple Endocarditis there were Small Recent Vegetations on the Aortic or Mitral Cusps.*

| | Simple. 64 cases. | Infective. 64 cases. |
|---|---|---|
| Average weight of liver ... ... ... ... | 57·5 ounces. | 65·2 ounces. |
| Nutmeg liver ... ... ... ... ... ... ... | 50 cases. | 37 cases. |
| Average weight of spleen ... ... ... ... | 8·9 ounces. | 14·9 ounces. |
| Diffluent spleen ... ... ... ... ... ... | 4 cases. | 21 cases. |
| Average weight of kidneys ... ... ... ... | 5·2 ounces. | 6·9 ounces. |
| Pneumonia ... ... ... ... ... ... ... | 2 cases. | 18 cases. |
| Cerebral embolism or thrombosis ... ... | 3 ,, | 12 ,, |
| Infarctions in lungs, spleen, and kidneys | 18 ,, | 44 ,, |
| Infarctions in lungs ... ... ... ... ... | 9 ,, | 7 ,, |
| Infarctions in spleen ... ... ... ... ... | 5 ,, | 30 ,, |
| Infarctions in kidneys ... ... ... ... ... | 8 ,, | 25 ,, |

secondary to emphysema or chronic nephritis (*vide* table), showed that it occurred 44 times in the former but only 18 times in the latter—that is to say, embolism was nearly three

[6] THE LANCET, March 7th, 1896, p. 656.

[7] Bulletin de la Société Clinique, Paris, 1871.

[8] Bulletin de la Société Anatomique de Paris, 1868.

times as frequent in the infective as in the simple cases. Again, in the same series there was evidence of cerebral embolism in the form of cerebral softening, hæmorrhage, or thrombosis in 12 of the infective and three of the simple cases. In the infective cases there were infarctions in the lungs in seven instances, in the spleen in 30, and in the kidneys in 25, but in the simple cases the figures were nine, five, and eight respectively. Thus, in the infective series embolism was six times as common in the spleen and three times as common in the kidneys, but in the lungs was actually less common. The greater frequency of cerebral, splenic, and renal embolism in the infective series is doubtless due to fragments of the vegetations or of blood clot adhering to the vegetation being whipped off into the systemic circulation. In the infective cases, as vegetations were occasionally present upon the valves on the right side of the heart, it is reasonable to expect that pulmonary infection would have been rather more frequent than in the simple cases, but the reverse obtained. The most probable explanation of this anomaly is, that the so-called pulmonary infarcts are rarely the result of embolism but are, as Grawitz and Hamilton maintain, usually "apoplexies" following rupture of small blood-vessels into the bronchioles, which is specially liable to occur in severe passive congestion of the lungs. Lastly, it is worth noting that a "nutmeg" condition of the liver was described 50 times in the simple and 37 times in the infective series, indicating that prolonged failure of the right heart and consequently prolonged pulmonary congestion was more common in the former. Therefore, assuming these infarctions did not result directly from embolism but indirectly from passive congestion of the lungs, one would expect them to have been more frequent in the simple cases, and this is what actually happened.

Suppuration of the infarcts rarely occurred; this does not necessarily mean that the emboli which occasioned them were benign. Gaylord and Aschoff point out that though differences between the septic and the aseptic infarcts are "seldom perceptible" to the naked eye, yet microscopically, even if suppuration never takes place, the infarcts originating from septic emboli contain clusters of micro-organisms and an excess of polynuclear leucocytes. Emboli in chronic cases may occasionally give rise to suppuration, as occurred in one of the most protracted cases. A case under the care of Mr. Reginald Harrison in 1886 illustrates the difference in the septic character of vegetations detached as emboli from the same valve. A sailor, aged 26 years, was admitted suffering from an aneurysm of the right ulnar artery and with the symptoms of aortic regurgitation. His temperature after a surgical operation kept abnormally high and in a day or two there was evidence of obstruction of the ulnar artery on the opposite side and death occurred in a fortnight. Small soft nodules were found in the cavity of the aneurysm and a calcareous mass was lying in the left ulnar artery. Both forms of emboli were derived from the aortic valves, for they were the seat of large outgrowths, some calcareous and some soft. Two of the cusps were ulcerated. The plug in the left ulnar artery was evidently non-septic; it remained *in situ* for about 13 days and occasioned mechanical troubles only, while the embolism in the right artery, into the composition of which recent vegetations entered, was septic and speedily led to the production of an aneurysm.

Any attempt to classify the varieties of endocarditis on an anatomical basis, as into ulcerative and verrucose forms, is not justified, for the two kinds of lesion very frequently co-exist. Ulceration may, as in certain acute cases, be the more salient anatomical feature, but the necrotic lesions are usually accompanied by vegetative lesions. Although verrucose lesions may be the most conspicuous pathological manifestations in chronic cases, ulceration may also be present and fungating excrescences alone may be found in very malignant cases.

A classification founded on bacteriological investigation is not calculated to be of much clinical value, as the severity and character of the symptoms depend on the virulence rather than on the species of the infecting micro-organisms. It might have been anticipated that the infection produced by the various kinds of bacteria would present clinical differences, but so far this has not been established. Traube and Kirchensteiner,[9] arguing from the ephemeral existence of the pneumococcus in pneumonia, have stated that the endocarditis due to the pneumococcus runs a short course. Traube considers it less fatal and records a case of recovery. Kirchensteiner asserts that the fever in infection by the pneumococcus is usually continuous, whereas in other forms it is intermittent. Netter states that pneumococcic endocarditis lasts only from five to 20 days, and further observes that the vegetations are smoother and flatter and that embolism is rarer. If Netter's views were warranted, infective endocarditis would not be so generally fatal, seeing that it is estimated that 20 per cent. of the cases are due to the pneumococcus. Although general experience does not tend to confirm these observations, one fact, however, is pretty well determined—namely, that meningitis is more often associated with infection by the pneumococcus than by other forms.

It only remains, therefore, to adopt a classification on a clinical basis. Seeing that during the progress of the disease some one organ may be specially involved and the affection present special characteristics due to the functional disturbance of the organ implicated, infective endocarditis has been described as of various types—the cerebral, cardiac, renal, and intestinal. A classification of this description is, however, not sufficiently extensive, and I have preferred to divide my cases, according to the severity and duration of the symptoms, into acute, subacute, and chronic forms. More or less pyrexia is usually a constant feature, though sometimes it is conspicuous by its absence. The character of the temperature affords some indication of the type and severity of the disease. Jaccoud in 1885,[10] Pineau,[11] and others have described cases of infective endocarditis in which pyrexia has only been occasional or altogether absent. Even when acute in type the disorder may be attended with little or no fever, but such instances are exceptional. Dr. Claude[12] relates two instances where this was the case, and an interesting example of a similar description occurred in the practice of Dr. W. B. Warrington at the Stanley Hospital, Liverpool. I am indebted to him for the notes of the case and for the opportunity he afforded me of making a drawing of the heart. The patient was a girl, aged 19 years, with a history of rheumatism. Some few weeks before admission she had suffered from an ulcer of her foot. She was well nourished but markedly anæmic, as if severely chlorotic. Considerable dropsy of the lower extremities existed, with copious petechial hæmorrhages on both legs. The heart was enlarged and there were a systolic thrill and murmur at the apex; the pulse was rapid and very small; the liver was enlarged; the spleen was not felt; there were no hæmorrhages in the fundus oculi; the red blood cells were 2,976,000 per cubic millimetre; hæmoglobin was 35 per cent.; there was an excess of leucocytes and the urine contained blood and albumin. She was in the hospital four days and died suddenly, becoming comatose after an attack of vomiting. During the time she was in the hospital the temperature never rose above 99°, oscillating between 96° and 99°. The mitral segments at their edges of contact were covered with verrucose growths and similar excrescences extended into the cavity of the auricle; many chordæ tendineæ were ruptured; the aortic valves were healthy.

The temperature much more frequently pursues an anomalous course in the protracted forms of the disease. Sometimes in such cases the fever is ephemeral, characterised by slight elevations, interrupted by apyretic intervals of longer or shorter duration. Sometimes the fever is for a while intermittent and then becomes continuous, or the temperature may be normal for days together. In the great majority of cases the pyrexia assumes a continous intermittent or irregular intermittent type, very rarely a malarial form. The temperature in my patients, far from conforming to any definite type, often followed an irregular and anomalous course. In some cases it was at no time much above normal; in some it was actually normal for days together and in others occasionally subnormal. Not infrequently the pyrexia shows a tendency to lessen towards the fatal termination; in the case of one patient who was in the hospital five months the temperature for weeks oscillated between normal and 102° and 103°; during the last six weeks of his life it rarely rose above 100°, and for the 16 days preceding death it

[9] Münchener Medicinische Wochenschrift, August 3rd, 1897.

[10] Clinique Medicale de la Pitie, 1885-1886.
[11] Endocarditis Infectieuses, 1893.
[12] Progrès Medical, December, 1901.

was subnormal. The cardiac lesions were exceptionally severe, the diseased aorta and the aortic valves were covered with fungating excrescences and the vegetations also extended over the endocardium; the anterior cusp of the mitral valve was perforated.

In very few patients were there rigors. Sir T. Lauder Brunton[12] has pointed out that the access of fever in infective endocarditis is often fugitive, so that the temperature should be taken several times daily in any suspicious case. The temperature charts of many of the patients to whom I have alluded would show how important it is to exercise such a precaution and how easily the existence of a little pyrexia may be overlooked. The temperature chart of a patient who died from endocarditis under the care of Dr. J. Hill Abram emphasises the importance of the frequent use of the thermometer; for seven days the temperature was taken night and morning and there was evidence of slight pyrexia only. Subsequently the thermometer was used every four hours and then it was seen that the fever was most marked in the intermediate intervals. In some patients pyrexia was absent for days and weeks at a time; in such the transient periods of fever are readily overlooked. One woman was in the hospital three months. For days together her temperature was subnormal; after death the aortic cusps were found to be covered with vegetations, the spleen enlarged, and bacterial infarcts, causing subcapsular hæmorrhages, were found in the kidneys. Another woman was in the hospital a month. During the first fortnight her temperature was never above 100° and for the last fortnight was normal or subnormal. She was markedly anæmic and much wasted. The mitral cusps were found to be covered with vegetations and many chordæ tendineæ were ruptured and the spleen was enlarged. Another patient, a man, was in the hospital seven weeks and for the last month of his life his temperature was normal or subnormal and his heart presented the typical features of an infective endocarditis. In five patients the pyrexia was of mixed type, long periods of normal or subnormal temperatures were interrupted by short periods of fever. In six the temperature was generally little above normal or became normal or subnormal as the fatal termination was approached. In all these there was evidence of very positive renal trouble; in nearly all hæmaturia; in one hæmatinuria. It might seem likely that the disease of the kidneys afforded an explanation of the anomalous temperature in these cases were it not that the same apyretic forms occurred in subjects who presented no symptoms of nephritis. In the temperature charts of five other patients pyrexia was often absent and they were free from disease of the kidneys.

[12] Edinburgh Medical Journal, May, 1897.

THE CHILDREN'S FRESH AIR MISSION.—The annual meeting of the Children's Fresh Air Mission will be held in Staple Inn Hall, Holborn, London, E.C., on Tuesday, April 28th, when Alderman and Sheriff Sir George Wyatt Truscott will preside. This mission sent 2430 poor and ailing children into the country last year to benefit by change of air.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—A quarterly court of the directors of this society was held on April 8th, Mr. Christopher Heath, the President, being in the chair. Two new members were elected; the death of a member and the resignation of two members were reported. The death of a widow, aged 87 years, who had been in receipt of grants of the annual value of £62 since April, 1887, was announced. There were no fresh applications for grants. It was resolved to distribute at the next court £1251 among the 55 widows, 13 orphans, and the four recipients from the Copeland fund who had applied for the renewal of their grants. The expenses of the quarter were £56 19s. The following gentlemen were nominated for election at the annual general meeting to fill the vacancies among the officers of the society—as vice-presidents, Mr. Couper, Dr. W. Rigden, and Mr. T. Laurence Read; as directors, Dr. Brodie, Mr. Richards, Dr. Adams, Mr. Mahoney, Mr. H. Rogers, Mr. Smale, Dr. F. H. Champneys, Dr. Younger, and Dr. Chambers. The annual general meeting of the society was fixed to be held on Wednesday, May 20th, at 5 P.M., at 11, Chandos-street, W.

# AN ANALYSIS OF 220 CASES OF SUDANESE LEPROSY.

BY T. J. TONKIN, L.R.C.P. & S. EDIN., &C.,
LATE MEDICAL OFFICER, HAUSA ASSOCIATION'S CENTRAL SUDAN EXPEDITION, 1893-94-95.

As the following paper is written for those who are more or less directly interested in leprosy I have not entered into any long explanation of my results, nor have I discussed them any further than has seemed to be quite necessary for easy comprehension. For the sake of brevity and clearness I have in the main limited myself to recording my observations, arranging and tabulating them for convenience of reference. The scope of the analysis is indicated by the heading of the paper. During the time I was engaged, among other things, on the investigation of leprosy in the Central Sudan a very large number of cases of the disease passed in one way or another across my line of observation. Many of them were out of convenient range, but 220 presented themselves in circumstances which allowed me to go very fully into most of the important points relating to their disease and it is this collection that I am now bringing forward. I was able to deal with the subjects of these cases at first hand and in all but a very few instances in their own language and without the mediation of an interpreter. I need hardly point out the advantage of this. I was also in a position to examine a large number of them on several successive occasions and this has necessarily enabled me to be surer of my results than I could have otherwise been. It has also enabled me to give in some directions fuller details. I do not, however, attach extreme importance to everything I have set down, but it is always possible that others may be interested in points that seem of small moment to me, and for that reason I am reporting some things that I otherwise should have left out. To facilitate comparison I have followed the scheme of arrangement used by most previous observers.

*The Sudanese leper field.*—I have already published an account of the situation and size of the Sudanese leper field,[1] and geographical details at length are in any case out of place in such a paper as this, but the term Sudan, as popularly understood, is so misleading that the accompanying sketch-map is not altogether as unnecessary as might appear. A glance at it will prevent the reader from falling into the mistake of regarding the Sudan as exclusively an appanage of Egypt and will give him in the readiest manner some idea of the situation, and roughly the extent, of the field from which the instances of the disease dealt with in the following paragraphs are drawn.

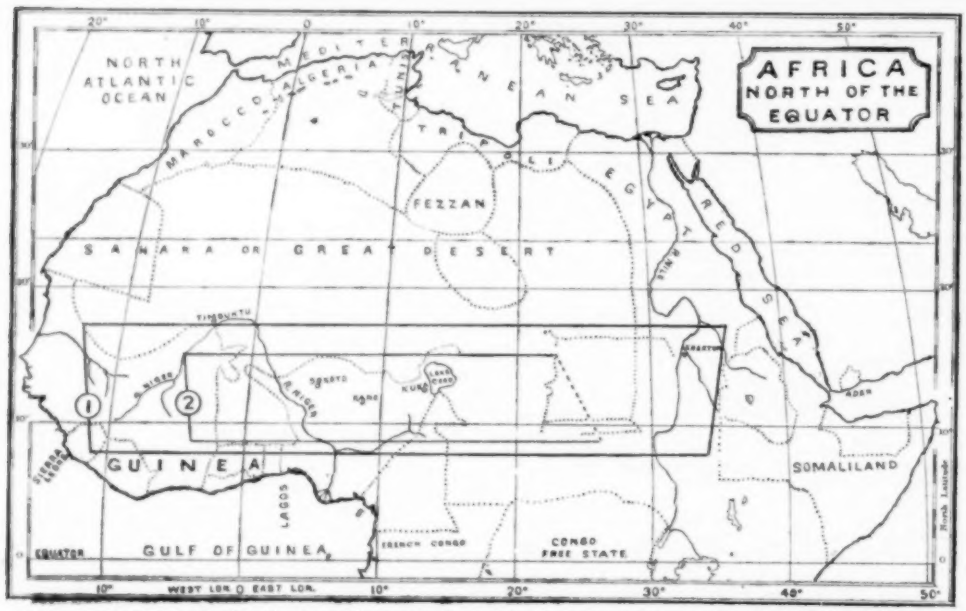
*The signs of the disease.*—In dealing with this part of the subject I have thought it better to report the various morbid conditions as I found them than to tie myself to any particular classification of the forms of the disease. I have simply catalogued the recorded appearances of each case and summarised the results in Table I.

TABLE I.—*Cases classified according to the Signs of the Disease presented.*

| — | Numbers. | Percentages. |
|---|---|---|
| Patches only ... ... ... ... ... | 96 | 43·6 |
| Tubercles only ... ... ... ... ... | 4 | 1·8 |
| Patches and tubercles ... ... ... | 19 | 8·6 |
| Patches and mutilations ... ... | 95 | 43·1 |
| Tubercles and mutilations ... | 0 | — |
| Patches, tubercles, and mutilations ... ... ... ... ... ... | 2 | 0·9 |
| Unclassified ... ... ... ... ... | 4 | 1·8 |
| Total ... ... ... ... ... | 220 | 99·8 |

It will be seen that this table gives a percentage of 86·7 cases presenting patches only, against 11 3 which were characterised by tubercles. These figures would seem to suggest that the macular variety of the disease is greatly

[1] Transactions of the International Leprosy Conference, Berlin, 1897.




Outline map of Africa north of the Equator, to illustrate the leper field in the Sudan. The space marked 1 roughly defines the area of the Sudan. The space marked 2 gives some idea of the probable extent of the leper field. Kano is the centre of the districts in which leprosy is regarded as being most prevalent. Sokoto is the political capital of the Hausa States. Kuka is the capital of the kingdom of Bornu.

in excess in the Central Sudan. This is no doubt largely the case. The extreme preponderance of the macular variety which is shown is, however, subject to some modification. In the first place the expectation of life is about twice as long, if not more, in a macular as it is in a tuberculated case. The figures merely suggest the probable proportions of the two phases of the disorder among such lepers as may be alive at any given time: they do not in any sense indicate the relative number of individuals attacked, say, annually, by each. Further, the characteristic lepromata which stamp a case as tuberculated may disappear, and though by reason of the greater severity of this form of the disease such retrocession is rare, it still occurs with sufficient frequency to lead to the inclusion among the macular class of a number of cases which have not always belonged to it. In drawing up my tables no attention has been paid to statements about pre-existing conditions; the appearances set down are in every case those that were visible at the time of examination.

*Relative liability of the sexes.*—Of the relative liability of the sexes to leprosy, data taken in the part of the Sudan that this paper is concerned with supply definite information. Although the particular region referred to has been, and still is being, strongly influenced by Mahomedanism, some of the customs which are usually associated with that religious system have not as yet made such headway as to affect the liberty of the women, and I was in consequence able to deal with both sexes with equal freedom.

TABLE II.—*Cases arranged according to Sex.*

| Sexes. | Numbers. | Percentages. |
|---|---|---|
| Males ... ... ... ... ... ... ... | 125 | 56·81 |
| Females ... ... ... ... ... ... ... | 95 | 43·18 |
| Total ... ... ... ... ... ... | 220 | 99·99 |

As far as I am aware there is in the Sudan no reason why one sex should be more liable to the disease than the other.

*The onset of the disease.*—With regard to the period of life at which the first definite signs of leprosy most commonly make their appearance I find my results are at variance with those of some well-known observers. The report of the Indian Commission shows that of the persons examined by it the majority became lepers between the ages of 26 and 30 years and that from 21 to 25 years was the next most favoured period. The possibility that in the Sudan they more often appear at an earlier date, while the constitution is yet unformed and the vital energies are still taxed by the strain of growth, is shown by Table III.

TABLE III.—*The Age of Onset arranged in Periods of Five Years.*

| Years inclusive. | Number of cases. | Percentages. |
|---|---|---|
| 1-5 | 11 | 5·00 |
| 6-10 | 45 | 20·45 |
| 11-15 | 41 | 18·63 |
| 16-20 | 44 | 20·00 |
| 21-25 | 31 | 14·09 |
| 26-30 | 17 | 7·72 |
| 31-35 | 9 | 4·09 |
| 36-40 | 10 | 4·54 |
| 41-45 | 4 | 1·81 |
| 46-50 | 3 | 1·36 |
| 51-55 | 1 | 0·45 |
| 56-60 | 2 | 0·90 |
| Unclassified | 2 | 0·90 |
| Total ... ... ... ... | 220 | 99·94 |

This table gives from the sixth year onward to the twenty-fifth year as the period most frequently marked by the inception of the disease, leprosy most commonly attacking the individual during the continuance of the processes of growth and development.

Table IV. is in continuation of the same subject. It gives, divided into sexes, the cases in which the disease was developed between the first and the tenth years inclusive.

TABLE IV.—*Cases in which the Disease appeared between the First and Tenth Years arranged according to Sex.*

| Years inclusive. | Numbers. | Percentages. |
|---|---|---|
| *Males.* | | |
| 1–5 | 4 | 1·81 |
| 6–10 | 28 | 12·72 |
| *Females.* | | |
| 1–5 | 7 | 3·18 |
| 6–10 | 17 | 7·72 |
| Totals... ... ... | 56 (*ex* 220) | 25·43 |

That the foregoing figures, which are double those given by the results of the Indian Commission and four times more than those of Dr. Vandyke Carter, represent a general rule in the Sudan is, of course, more than I can say. All I can be reasonably sure of is that the earliest signs of leprosy appeared before the tenth year in over 20 per cent. of the cases which I examined.

*Situation of the lepromata.*—As I have dealt with this question more fully elsewhere[2] I need only mention here what I found to be the usual sites of the primary characteristic skin lesions. The face, particularly the prominences of the cheekbones and temporal ridges, the outer surfaces of the extremities, the scapular region, and the buttocks seemed to be the localities most frequently affected by the early leprous infiltrations and possibly in the order named. I have never seen nodules on the palms of the hands or on the soles of the feet. The outer borders of the feet, however, I have often seen the seat of very dense leprous infiltrations.

*The duration of the disease.*—Table V. gives in quinquennial periods the number of years which, at the date of examination, had in each of my cases elapsed since the onset of the disease. It is to my mind, and for reasons some of which I will state presently, one of the most interesting in the whole series.

TABLE V.—*Years elapsed since the Onset of the Disease, arranged in Periods of Five Years.*

| Years inclusive. | Numbers. | Years inclusive. | Numbers. |
|---|---|---|---|
| 1 to 5 ... ... | 100 | 36 to 40... ... ... | 2 |
| 6 to 10 ... ... | 48 | 41 to 45... ... ... | 1 |
| 11 to 15 ... ... | 34 | 46 to 50... ... ... | 1 |
| 16 to 20 ... ... | 18 | 51 to 55... ... ... | 1 |
| 21 to 25 ... ... | 8 | Unclassified... ... | 2 |
| 26 to 30 ... ... | 5 | | |
| 31 to 35 ... ... | 0 | Total ... ... ... | 220 |

What strikes me as particularly interesting about this table is the relation which it bears to what appears to be still debated as the possibility of recovery from leprosy. That many instances of recovery from most grades of leprosy do actually occur is to me a thing beyond debate. It would be out of place to discuss the question at length here, though it is one on which in all probability many important issues will be found to hang; but in view of the idea, very widely spread even in professional circles, that the disease is a hopelessly incurable one, it is probably desirable that those who have good reasons for holding opposite opinions should take every opportunity of stating them, even though the scope of some of the opportunities, as in the present instance, precludes the possibility of putting the statement in the form of an argument. Of course, we know that from time immemorial leprosy has been regarded, not without reason, as an incurable disease. But there are two ways of reading incurable. Incurable it certainly is in the sense that at present we are not in the possession of any remedy that affects its course as dramatically as, say, mercury and the iodide of potassium affect that of syphilis. But, personally, I cannot look upon it as incurable in any other sense. Leprosy is a disease that runs a fairly well-defined course. It is rare to hear of the actual morbid processes covering a period of more than from 15 to 20 years. I do not use these figures because they represent any rule, but because they are outside figures and are therefore safe ones. It is usually quite safe to assume that if an individual has survived the onset of his disease by anything approaching 20 years he will also have survived the disease itself. In such a case as this it will generally be found that all specific leprous manifestations have disappeared. Their effects may remain—the fingers and toes that may have been lost will not grow again—but it is, to my mind, as illogical to regard a man on that account as suffering from leprosy when he may have enjoyed previously to the date of his examination anything from five to 15 years of unbroken health and when his capacity for labour is only limited by the actual destruction of tissue resulting from the pre-existent disease, as it would be to suggest that a person was suffering from small-pox because 10 years after he had had the disorder he happened to be still badly marked. I have seen many cases of alleged leprosy in which the individuals in question have suffered from what I should regard as a severe grade of the disorder but have nevertheless outlived all special signs of it, and entered into the enjoyment of a post-leprous period of what appeared to me at any rate to be thoroughly good health; and I think the circumstances in which such cases as these occur have probably in the past received too little attention.

*Hereditary transmission of the disease.*—The next two tables (Nos. VI. and VII.) bear on the somewhat discredited subject of the hereditary transmission of the disease. They have, however, when taken with others, a sociological interest quite apart from their bearing on the mere abstract question of the possibility of hereditary transmission.

TABLE VI.—*Dealing with the Condition of the Parents of the Lepers examined.*

| — | Numbers. | Percentages. |
|---|---|---|
| Number of cases in which both parents were leprous at the date of the subject's birth ... ... ... ... ... ... ... | 2 | 0·909 |
| Number of cases in which one parent was leprous at the date of the subject's birth ... ... ... ... ... ... ... | 16 | 7·27 |
| Number of cases in which it was doubtful whether the onset of leprosy in a parent or parents ante-dated or post-dated the subject's birth ... ... ... ... | 6 | 2·72 |
| Number of cases in which it was certain that the subject was born of healthy parents ... ... ... ... ... ... ... ... | 196 | 89·09 |
| Total ... ... ... ... ... ... ... ... | 220 | — |

Now, if we adopt the reasonable assumption that a parent or parents cannot, by any process that may be called hereditary, pass on a disease to their offspring unless they are affected by that disease at the time of the begetting of the offspring the foregoing table makes it clear that out of my cases in only the exceedingly small minority of a fraction over 10 per cent. (10·89 per cent.) was it likely that direct transmission might be answerable for the appearance of the disease, while in 89·09 per cent. it would seem absolutely impossible that any such process could have had a hand. Again, if parents can pass on the disease to their offspring there appears no reason why they should not do so in a fair proportion of possible instances; and, if they did, it should certainly be found that a considerable percentage of the children of lepers manifest the disease in early life. My results do not bear out the supposition that any considerable percentage does, but even if it did the contact to which the children of lepers are occasionally liable and the environment to which they and their leprous parents are in common subject are agents the operation of which is at least as probable as that of the hereditary factor. Table VII. deals with the children. 450 children had, at the date of my journey through the Central Sudan, been born to the 220 lepers I examined; and Table VII. compares the condition of such of them as were born before their parents became lepers with that of those who were born after.

[2] Transactions of the Royal Medical and Chirurgical Society, 1902.

TABLE VII.—*Comparing the Condition of Children born before the Parents became Lepers with the Condition of those born after.*

| — | Totals. | Alive. | Dead. | Lepers. | Percentages. |
|---|---|---|---|---|---|
| Number born before the onset of the disease in one or both parents ... ... | 242 | 113 | 129 | 17 | 7·02 |
| Number born after the onset of the disease in one or both parents ... ... ... | 208 | 114 | 94 | 26 | 12·05 |
| Total ... ... ... | 450 | Average age of survivors 16·33 years. | | | |

These figures support all other available evidence on the subject of hereditary transmission of the disease. They suggest that if the children of lepers could be removed from contact with their parents and effectually guarded from the influence of the agencies under which the parental disease was contracted, very few, if any of them, would ever develop the disorder.

*Disturbance of sexual functions by leprosy.*—This branch of the subject is closely connected with the last, for an impairment of procreative power which usually culminates in sterility cannot be considered a suitable medium for the cultivation of anything that is hereditary. That advanced leprosy does interfere with the effective discharge of the sexual functions seems beyond doubt. That this interference is in proportion to the stage of the disorder is also clear; and, though lepers may and often do beget and bear children, the period during which such occurrences are usual may in persons affected by a progressive form of the disorder be limited to the first few years immediately succeeding invasion; whereas in the later stages, when the grosser alterations of structure are accomplished and the vital processes are more gravely modified—by the time, in other words, that the parents have anything to pass on to their offspring—it may be taken as a general rule that they are completely sterile. Table VIII. illustrates this state of things.

TABLE VIII.—*Dealing with the Fertility of Leprous Couples.*

| Condition of couples. | Number of couples. | Number of persons those couples represent. | Average term of cohabitation in years. | Total number of children born. | Average number of children per couple. |
|---|---|---|---|---|---|
| Husband leper; wife healthy ... | 45 | 80 | 6·85 | 36 | 0·8 |
| Wife leper; husband healthy ... | 28 | 54 | 8·5 | 49 | 1·75 |
| Both parents leprous ... ... | 58 | 100 | 7·5 | 72 | 1·24 |
| Combined ... ... | 131 | 234 | 7·49 | 157 | 1·19 nearly. |

Table VIII. needs little explanation. It is evident that if 131 couples, living together on the average nearly seven and a half years apiece, only produce as the fruit of their cohabitation during that time one child and a fraction apiece some influence capable of interfering with propagation must be at work—and leprosy is the common factor. The application of the table to hereditary transmission is also clear. 234 adults, about 130 of whom are leprous, have as a measure of their procreative capacity 157 children—all these children are, of course, born after the onset of the parental disease. Table VII. points out that of children actually born of affected parentage only about 12½ per cent. ultimately develop the disorder. Let us assume that 20 per cent. do and we shall still have less than 30 leper children with whom to fill the places of somewhere about 130 leper parents. It is needless to point out that if the diffusion of leprosy depended to any extent on such a process as hereditary transmission of the disease the disorder would, in these circumstances, have long ago become of historical interest only.

*The predisposition to leprosy.*—The place of predisposition in leprology is wide and beset with many difficulties, but for the purposes of a paper which is merely an analysis of so many cases of the disease the subject is narrowed down to a single point. It is, of course, necessary to assume that some peculiar state of being, such as that denoted by the term "predisposition," is essential to the development of the disorder. That being granted, the only question with regard to which anything like a decision can be arrived at by statistics of the kind that I have to offer is whether the origin of the predisposition is to be found in the leprosy of a parent or more remote ancestor or not. If the leprosy of a progenitor be not its source it must of course be derived elsewhere, but that is another matter and outside the scope of this analysis. The question at issue here, then, runs as follows: Is the particular condition of body which is assumed to allow the bacillus of leprosy to attack the tissues of an individual with a prospect of success due to the effect of leprosy on one or more of that individual's ancestors, or is it not? In other words, is the tendency specific or otherwise? And in view of the results of my analysis I can hardly do other than head the few paragraphs and tables bearing on this point as the case against the specific tendency.

*The case against the specific tendency.*—In dealing with the lepers who came under my observation I found it possible in most instances to get a pretty full and fairly well substantiated family history. In the bulk of the cases I was able to assure myself of the condition of the grandparents as well as of the parents, and as in some instances my records reach to the great-grandparents also it may be assumed that there is, on an average, a background nearly two generations deep supporting each case. Now it is certainly possible for a given morbid tendency to remain latent through several generations in a direct line and it is conceivable, therefore, that a susceptibility having its source in the leprosy of an ancestor may possibly, acting through the intervention of many individuals, come at last to be a factor in the causation of the disease in a descendant. But a susceptibility of this kind cannot be regarded as exercising any special influence on the spread of leprosy. It is difficult to be sure of its existence. It is evident that if several individuals intervene between the leprous ancestor and the suffering descendant any or all of them, including the ultimate leper himself, may have acquired the disposition, which is assumed to be necessary, under the influence of agencies in no way connected with ancestral disease; and as it is certain, from the occurrence of leprosy in individuals whose ancestry has been quite free from taint, that the predisposition may be acquired in this way, it must be admitted that the balance of probability is against the former alternative. It may be stated, then, as a general proposition, that it is unlikely that the operating tendency in any given case is derived solely from leprosy when the family history of the subject can be ascertained to be free from taint for any considerable period, it being probable in such a case that causes of a simpler and more general nature are responsible for its occurrence. It is on this understanding that the following table divides my cases.

TABLE IX.—*Dividing Cases with Regard to the Presence or Absence of Leprous Taint in the Direct Family Line.*

| — | Numbers. | Percentages. |
|---|---|---|
| Number of cases in which the direct family line was free from taint for at least two generations ... ... ... ... | 159 | 72·27 |
| Number of cases in which leprous taint was admitted ... ... ... ... ... ... | 52 | 23·63 |
| Unclassified ... ... ... ... ... ... ... | 9 | 4·09 |
| Total ... ... ... ... ... ... ... ... ... | 220 | — |

It will be seen that in this table we get about 25 per cent. of a given number of cases in which it might seem possible to ascribe the predisposition to ancestral disease. Table X., however, which divides the cases in which taint was admitted according to the generation affected by the disease, shows that this percentage is liable to diminution.

TABLE X.—*Cases in which Leprous Taint was admitted, arranged according to the Generation affected.*

| — | Numbers. | Percentages. |
|---|---|---|
| Number of cases in which the taint was parental ... ... ... ... ... ... ... ... ... | 36 | 16·35 |
| Number of cases in which the taint was grandparental or farther removed still | 16 | 7·27 |
| Total ... ... ... ... ... ... ... ... ... | 52 | — |

While in Table XI. the 36 cases in which parental taint was admitted are further divided with reference to the condition of the parent or parents, whether healthy or leprous at the date of the birth of the leper examined.

TABLE XI.—*Cases in which the Taint was Parental, divided according to the Condition of the Parent or Parents at the date of the Subject's Birth.*

| — | Numbers. | Percentages. |
|---|---|---|
| Number of cases in which one or both parents were actually lepers at the date of the subject's birth ... ... ... | 18 | 8·18 |
| Number of cases in which the parent or parents were lepers, but only became so after the date of the subject's birth | 12 | 5·45 |
| Unclassified ... ... ... ... ... ... ... | 6 | 2·72 |
| Total ... ... ... ... ... ... ... ... | 36 | — |

It will be seen that these tables (Nos. IX., X., and XI.) afford direct evidence as to whether the predisposition to leprosy is specific—that is, whether it is due to the influence of the disease on the person of a parent or more remote ancestor or not.

On reference to Table IX. it is evident that out of the 220 persons examined only 61 could reasonably have ascribed their tendency to the effect of the disorder on a parent or other ancestor, since for two generations at least the immediate progenitors of the remaining 159 had enjoyed good health so far as leprosy is concerned. This suggests that in at least 70 per cent. of the cases the tendency must have been of general origin. Moreover, of the remaining 61 persons whose predisposition might possibly have been derived from ancestral disease, in 16 (Table X.) a healthy parent intervened between the affected grandparent who was the possible source of the tendency and the patient, while in 12 (Table XI.) the "ancestral" disease was only developed by the parent after the birth of the person to whom he is to be supposed to have transmitted it. When we further extract the nine cases (Table IX.) which are only included as having taint in the direct family line because nothing definite could be ascertained about them, we shall find that we are left with a remainder of 18 cases (out of 220) in which, as the disease was parental and antedated the birth of the person under examination, it would not be unreasonable to consider it a possible source of the tendency. But if the leprosy of an ancestor were even an ordinary source of the tendency in a descendant, one would naturally expect to be able to demonstrate the reasonable possibility of the relationship in a larger proportion of cases than 18 out of 220.

*The effect of family contact.*—However the predisposition to the disease may be acquired it is evident that a large number of people must from time to time develop it and to these people at such times continued contact with leprosy means the possibility of contracting the disease themselves. Now it is likely, considering the patriarchal style of the Sudanese *ménage*, that a large number of those persons examined by me, in whose case it was found that either a parent, grandparent, or more had suffered from the disorder, had been subject to personal contact with leprosy at an early age—at an earlier age for example, all other things being equal, than those who having no leprosy in their own homes had to go outside for their opportunities of contact. That there is some foundation for this idea is suggested by Table XII., which shows that of the persons examined those brought up among surroundings in which family leper contact was a possibility did actually develop the disorder at an earlier age than those from whose early associations that contact was probably excluded.

TABLE XII.—*Dealing with Ages at which the Disease was developed, divided according to the Presence or Absence of Leprosy in the Family.*

| Condition of family. | Number seen. | Average age of onset of disease. |
|---|---|---|
| Cases with leprosy in the family ... ... | 52 | 13·26 years. |
| Cases without any leprosy in the family | 167 | 20·83 years. |

Table XIII., which deals with the condition of over 700 individuals, the brothers and sisters of the persons whom I examined, illustrates a further probability in this direction. It compares the number of lepers among the brothers and sisters of such of my patients as admitted a taint in the direct family line and who, therefore, might have been in early contact with leprosy, with the number among the brothers and sisters of those whose direct family line was free from taint and whose early years were therefore not so likely to have been subject to home contact.

TABLE XIII.—*Condition of the Brothers and Sisters of my Patients, divided with reference to the Freedom from Leprous Taint or the Reverse of the Family Line.*

| Condition of family. | Number of individuals. | Average age of survivors. | Number of lepers among them—alive and dead. |
|---|---|---|---|
| Condition of brothers and sisters of persons with taint in the direct family line... ... | 166 (dead 76) | 22·05 years. | 13 |
| Condition of brothers and sisters of persons without taint in the direct family line | 560 (dead 307) | 30·58 years. | 17 |

On the showing of these two tables (Nos. XII. and XIII.) it certainly appears that persons exposed to direct contact with leprosy are more liable to contract the disease than those farther removed. They have, therefore, some bearing on the question as to how far the leper himself is responsible for the continued maintenance of his disease.

*Sanitary conditions.*—The general sanitary conditions of the various centres of population in the parts of the Sudan visited by me are much the same as those of semi-civilised tropical communities elsewhere. Distinctly disgusting on the surface they are probably much less offensive in reality than might at first appear, but as they have no special bearing on the endemic disease it is not desirable to enter into any consideration of them here. Of the personal habits of the people, however, it is necessary to say a word or two. With regard to cleanliness of body the average Sudanese native is influenced by considerations of appearance, comfort, and convenience rather than by any abstract longing after cleanliness for its own sake. If he lives near a pool or river he will wash his body because it looks nice to be clean and feels nice to be cool, but if it entail any effort to compass these ends he prefers to put up with the inconvenience of the dirt rather than incur the trouble of removing it. So it happens that in such a place as Kano the surfaces of the bodies of thousands are from one year's end to another undisturbed save by scratching. With the habits of the people relative to clothing and bedding I have dealt fully elsewhere ;[3] it is only necessary for me to sketch the barest outlines here and to repeat that I believe that they have an important influence on the diffusion of leprosy in these regions. Native cloth is woven in narrow strips which are afterwards stitched together to form the piece. Garments made from these pieces do not stand washing well. For prudential reasons, therefore, as well as from habitual indifference to dirt, clothes and bedding are rarely washed, and both are handed about freely from person to person. As I have dealt with the mechanism of this circulation of clothes before there is no need for me to go into it again. It is only necessary to state here the fact that the bulk of the cloth in personal use in the

country has never been washed and is loaded with lice and that the habits of the people make it probable that any given garment that cloaks the shoulders of a man of the people has had a past during which it has done similar service for many previous owners. For the special connexion between this state of things and the course of the disease in the Sudan I must again refer my readers to my former paper on the subject.[4]

*Diet.*—The natives of the part of the Sudan I am writing about are chiefly vegetarian in their habits. They have no religious or other objection to meat, but they are not hunting races and the bulk of the individuals are gathered together in towns under conditions that make meat both scarce and dear. North of 8° north latitude, the mass of the people subsist on a dish called *tuo*. This is a porridge-like mess, the usual basis of which is the flour of the guinea corn (*Sorghum vulgare*), but other flours, such as that of rice, are sometimes used. This *tuo* is washed down by a vegetable soup. South of 8° north latitude the yam (*Dioscorea sativa*) is very extensively eaten and sweet potatoes (*Convolvulus batatas*) are procurable almost everywhere. Even in the south, however, *tuo* is still the popular dish. Besides rice, guinea corn, yams, &c., the other grain and vegetable products used as food include manioc, onions, beans, a grain known as atcha (*Pennisetum typhoideum*), and a little wheat. Where the country is populous and quiet, cows are kept, sour milk is drunk, and a small amount of butter is made. In the largest towns and where there are Arabs bread and soft native cakes (*wéna*, *massa*) are obtainable, but these have little connexion with the diet of the masses. Oils obtained from monkey-nuts and the kernel of the shea butter tree (*Bassia Parkii*) are used for culinary purposes, and, by a treatment not unlike our own malting, guinea corn is made to produce an intoxicating soup (*gia*).

Now I do not wish to pay the price of brevity by being misunderstood. I am not saying that animal food is not eaten in the parts of the Central Sudan affected by leprosy, because it is. The village must be a small one that cannot be relied upon to produce fowls and every roadside town has its flock or flocks of goats; and both goats and fowls are killed and eaten. Moreover, in the large towns cattle are slaughtered often, in some daily, and in Kano market even camel meat may occasionally be obtained, but in no case is the amount of animal food at disposal large enough, or its price low enough, to permit of these circumstances having any material influence on the diet of the masses. The only form in which, with any regularity, meat reaches the lower strata of society is that of *kilishi*. The trade in this commodity is in the hands of petty dealers comparable to those who in our own country manage the smallest and least reputable variety of fried-fish shop. The meat of the day before is bought cheaply by these dealers, cut into wafer-like strips, highly seasoned with pepper, roasted crisp, and sold hot, and it is bought by the people who eat this kind of thing in minute quantities, and used, not as a nourishment, but as a relish. With *kilishi* begins and ends many a poor-class Hausa's acquaintance with meat.

Of fish as an article of diet, and of the limitations affecting the supply of it in the regions with which I am concerned, I gave some details in my reply to questions put after the reading of a paper of my own referred to before.[5] They were to the effect that the quantity of fish on sale in representative markets is, for sundry easily comprehensible reasons, small, and that what there is of it is, as a rule, dearer than meat. Fish, therefore, is consumed by the masses of the country even to a less extent than meat. Throughout the whole country salt is very scarce and dear.

*Attitude of the people toward the disease.*—Except in so far as personal tastes are concerned the attitude of the people among whom I mixed toward leprosy is one of absolute indifference. In the Central Sudan lepers are free in every way and no restraint whatever is imposed upon them. They may live where and how they like, mix with whom they will, engage in any occupation they may fancy, and marry anyone who will have them. Marriage, however, is one of the relations of life into which the element of personal taste referred to above enters largely. An advanced leper does not often marry a healthy woman, not because he is debarred by rule from doing so, but because most healthy women will have nothing to do with him. It often happens, too, that when one of a married pair develops leprosy and becomes offensive the healthy partner leaves the other when the latter event takes place.[6] The laxity of the institution that is looked upon by these people as marriage renders this quite an easy and ordinary affair. This separation is not due to fear of contagion but to natural physical disgust at the condition induced by the disease. Broadly speaking, the average native may be said, with regard to leprosy, to have no opinions, beliefs, or superstitions whatever. Now and then an extra intelligent man is met with who relates a chain of circumstances which has been sufficiently marked to attract his attention and which has apparently almost persuaded him to become a contagionist, but as a general thing inquiries on this subject even from educated natives elicit little more than the leisurely shrug of the shoulders and the upward movement of the eyebrows by which they may be understood to refer the matter to the inscrutable decrees of Providence.

*Summary.*—The facts and figures of the foregoing analysis will be found, with a few inconsiderable exceptions, to harmonise with those previously obtained. The age of onset appears to work out earlier for the Sudan than in some other exploited areas, but it is quite possible that this may be due to some local conditions that have escaped my notice and that are not represented elsewhere. It certainly appeared to me, however, that the period during which the system is subject to the constant change and strain attending growth and development might reasonably be regarded as one more likely to be marked by the invasion of such a disease as leprosy than later and more settled periods of life. Beyond this deviation there seems to be little else to give rise to discussion.

The question of recovery from the disease is interesting but it is not new. Evidence in favour of its occurrence has been given unconsciously as well as intentionally by almost every investigator whose records are available. The possibilities that exist in this direction seem to me to be large and I do not think that sufficient advantage has been taken of them.

With regard to the hereditary factor, it will be found to receive as little support from my results as from any others. The evidence afforded is against the supposition that the spread of the disorder is even remotely affected by any such process as hereditary transmission of the disease. If a leprous person be able to pass on his disease to posterity the results of the possibility of such a transmission should be most strongly marked in his immediate descendants—that is, his children—and there should be evidence of at least the likelihood that he derived his own disorder in a similar manner. But this is the kind of evidence which my results do not supply. Very few of my lepers were born of either leprous parentage or grand-parentage, and even with all the risks attending constant home contact with leprosy only 9·5 per cent. of their children ultimately developed the disorder. Moreover, leprosy is a disease that reacts prejudicially on propagation, and it is difficult to see how a disease that does that can reasonably be regarded as deriving support from a factor that is hereditary.

With regard to the sources of the predisposition to the disease, assuming its existence, much the same may be said. Whatever may be its source, it is most certainly not specific, not always due to the leprosy of an ancestor. Many instances are on record of leprosy having occurred in people who have had no leprous ancestors. And further, as already shown from the effect of the disease on the reproductive faculty, persons affected with severe grades of leprosy, far from being likely to bestow morbid tendencies on posterity, are much more apt to have no posterity at all. That the leprosy of an ancestor is not the source of the tendency in descendants we are probably on safe ground in assuming, and opinions on this point would most probably be unanimous; as to where the tendency is derived, however, whether from a single source or otherwise, and how, and what is its exact place and importance among the factors that maintain and diffuse the disease, they would hardly be so unanimous. For myself I think that deficiencies of diet have much to do with it. I have already indicated the line my ideas take in the matter,[6] so have not thought it necessary to touch on it in the body of this paper. The same consideration has withheld me from discussing the relationship between the disease and the habits of the people with regard to clothes and bedding, but I should certainly like to draw attention once more to the broad lines of resemblance that are displayed in these particular matters in

[4] Ibid. [5] Ibid. [6] Ibid.

all the leper fields of the world. In other particulars there is the greatest possible diversity. Suffering from a common disease, we have men of all colours, races, religions, and habits. We have leper fields on the line and within the Arctic circle, but everywhere leprosy is we have habits with regard to clothes and bedding which are open to criticism and stereotyped national diets which I think most of us will admit leave a good deal to be desired. That in the Central Sudan the communistic way in which unwashed clothes are handed about has a direct influence on the spread of leprosy I cannot doubt; and that a diet in which the carbohydrate elements are represented to an extent which disturbs the proper proportion of the nitrogenous should handicap races reared on it in their opposition to the advances of disease appears reasonable to me. That an ill-assorted diet can cause leprosy, however, or that the disease cannot be contracted without the intervention of such a diet, are opinions that I do not hold. This one, however, I do hold, that in the Central Sudan the most frequently operating factor, not in causing the disease but in assisting to determine its incidence, is that of a badly balanced and therefore inefficient diet.

Hanley.

# NERVE SUTURE AND NERVE REGENERATION.

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(*Concluded from p. 1022.*)

[THE following paragraph sums up the points observed macroscopically after the operation described in the last section of the first portion of Dr. Henriksen's paper.]

To account for a possible presence of asymmetry, in some of the animals the nerve was sutured on the right side and interrupted on the left, while in the rest of the animals the contrary was performed. Comparison of the weight of the muscles on the side of the united and on the side of the interrupted nerve proves that the difference up to the thirty-fifth day is comparatively small and irregular and will scarcely allow of any conclusion considering the limited number of experiments and the imperfection of the methods, such as inaccuracy from the excision of the muscles and possibly some evaporation during the excising and weighing of the muscles. From the thirty-sixth day the series takes a more definite character. On the side of the united nerve a constant and rapidly increasing excess occurs. The experiment must be supposed to be a confirmation that the muscle by this time must have resumed its action—a considerable time before it can be proved by the electrical current. The microscopical examination of the samples will be treated in conjunction with the examination of the samples from the other series.

### MICROSCOPICAL EXAMINATION OF NERVES.

For hardening of the nerves Müller's, Flemming's, or Marchi's fluid and formalin have been used. The nerve while hardening was extended on a piece of wood and was then imbedded in celloidin. Then there were made longitudinal sections of considerable length with the microtome. Some of the samples were teased in osmic acid, but in this way I only succeeded in getting fibres in an advanced stage, while those in the earlier stages, especially near the place of union, did not come out at all, or only as fragments in a way that allowed no conclusions as to their origin. Loosening the fibres in the sections succeeded better in getting characteristic details without tearing them totally from each other, so that the sections after the treatment had the appearance of a net with long meshes, and the fibres almost kept their mutual position. In this way it was possible to see all the components of the section in such a manner that their mutual relation might be easily understood. At the same time in the splits between the loosened fibre bundles it was possible to see single fibres and combinations of loosened fibres in different stages of their development with a clearness that I could not get in any other way. The loosening of the fibres was easily performed during the clearing up in oil or xylol.

Of great importance for the study of the regeneration of nerves is Weigert's myeline sheath stain. It furnishes good information about the first formation of myeline sheaths, gives sharp and clear pictures of the newly formed fibres, and is indispensable for understanding the preparations stained by other methods. In some cases staining with osmic acid and safranin has been employed. The method gives beautiful and illustrative pictures concerning the division of the nuclei and the relation of the nuclei to the old and new fibres, but it does not exhibit so clearly the finer changes of structure by the formation of the myeline sheath. Van Giesen's fuchsin-picrinic acid and hæmatoxylin stain gives excellent information about cells and nuclei in the regenerating nerve and in combination with Weigert's myeline sheath stain about the formation of the new fibres.

For the sake of clearness the central part and the peripheral part of the united nerve will be described separately; then will be mentioned the changes in the central and peripheral part of the interrupted nerve—that is to say, where union has not occurred; and lastly will be treated the changes at the place of union.

### THE CENTRAL PART OF THE UNITED NERVE.

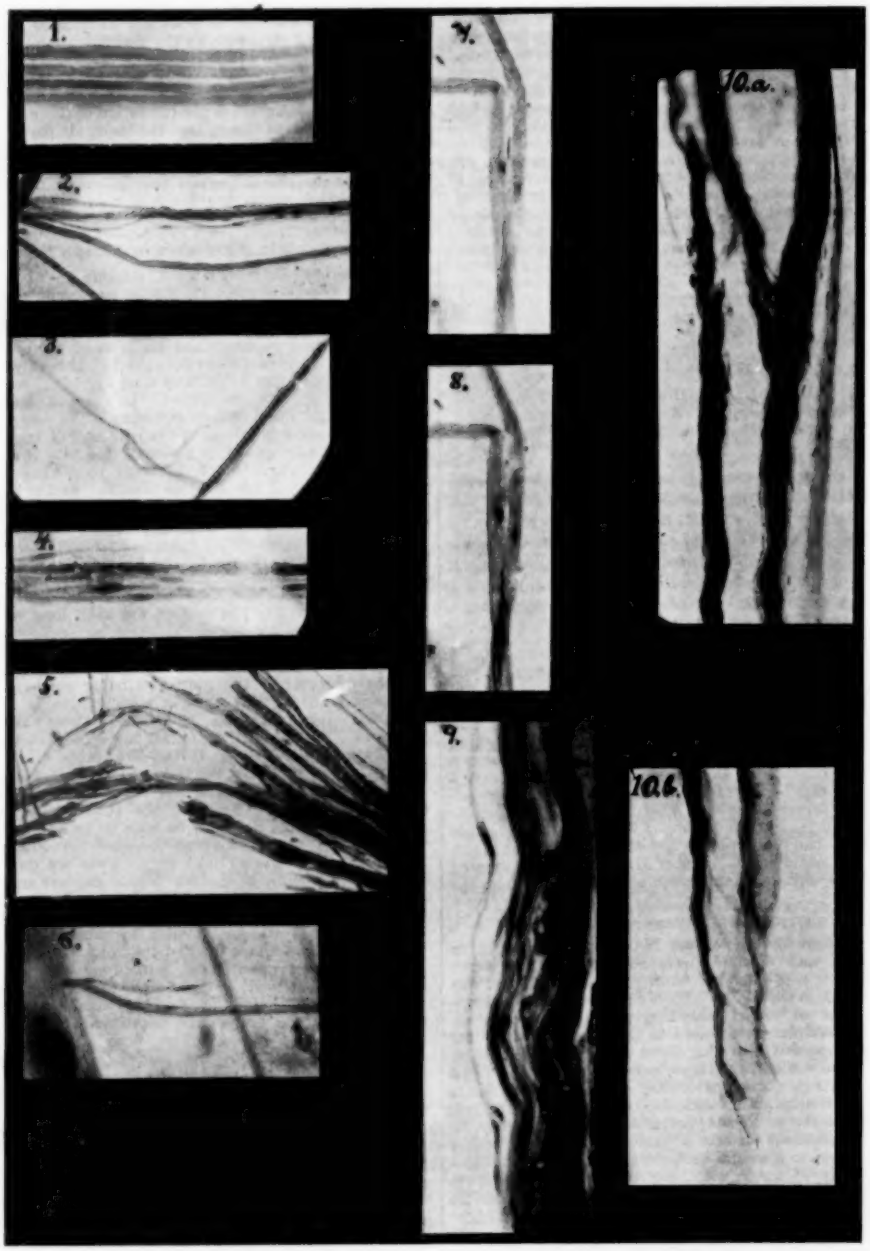
*Fifth day.*—(Flemming's fluid, safranin.) About half a centimetre from the place of division are found nerve fibres of uniform colour with broad brownish-black margins on both sides. Approaching to the place of division the nerve fibres are coloured less intensely and are more of a greyish-brown with thinner margins. They are coloured unevenly and have uneven margins, just as if they were corroded, and at last they are only slightly discoloured. In a few of the fibres the myeline sheath is broken into segments. The process is thus not quite the same in all the fibres; in most of the fibres the myeline sheath evidently is absorbed towards the place of division and only in a few of the fibres there are coagulation and breaking up of the myeline sheath. In the neighbourhood of the division place there is only a striped brownish tissue with numerous nuclei.

*Seventh day.*—(Flemming's fluid, safranin.) The absorption of the myeline sheath begins farther from the place of division, almost one centimetre, and is more pronounced. In some of the fibres the myeline sheath is broken up in irregular places. In the section are seen long rod-shaped or oval nuclei increasing in number approaching to the place of union. Some of them are buried in the nerve fibres, that are almost normal in colour, taking up half the diameter of the fibre and being surrounded by a lighter protoplasm zone that in some places is continued somewhat forwards and backwards along the fibres. (Plate IV., Fig. 1.) Other nuclei are placed between the fibres where they show thread-like processes. In the sections these processes are seen to form long light grey threads that disappear in a nerve bundle or join together with a nerve fibre. Some of the threads are bent and twisted, and by this they may be seen to be flat, being more narrow when they are seen from the edge than from the flat. Some are only (slightly) light grey, others are darker grey, brownish, and show a distinct double contour margin and thus must be understood to be real nerve fibres. In some places the red nucleus may be seen lying by the side of an old fibre, being attached to this by processes from both ends. Near the place of division may be seen bundles of these newly formed fibres, with long red nuclei torn off from the striped tissue that forms the continuation of the old nerve fibres. The nuclei are dividing; some of them are larger and more vesicular, in others the chromatin is deposited on both sides of the long axis; in other places the nuclei are seen in pairs divided in a longitudinal or somewhat oblique plane, the one being displaced somewhat in the longitudinal direction. Besides these long nuclei there are nuclei of a round or oval appearance; they are not so intensely coloured, are larger, and seem to be flat. Some are seen on the outer side of the unaltered nerve fibres, and others are seen in membranous bands in the teased sections. Besides these two forms there are seen irregularly shaped cells entering in between the lumps of myeline in the divided myeline sheaths of some of the nerve fibres. They seem to be of no importance to the regeneration and therefore will not be further alluded to.

*Twenty-fourth day and thirty-sixth day.*—(Marchi, van Giesen; Flemming's safranin.) For more than one centimetre from the place of union there are found newly formed fibres. They increase in number approaching to the place of union where there is not found a single fully developed or normal fibre. They have distinct, even double-contoured,

brownish margins and sharp beautifully coloured nuclei that lie totally within the margin of the fibres, the breadth of the nucleus being about the breadth of the fibre. Some nuclei have thinner processes that taper towards the ends. Some of nerves are cut transversely. Most of the fibres show a homogeneous plane within a thin black myeline sheath margin. In some of the transverse sections is seen a sharp, dark nucleus lying near the margin on the one side, but it

PLATE IV.




have almost the appearance that the nucleus is lying free outside another fibre. (Plate IV., Figs. 2 and 3.)

*Sixty-first day.*—(Flemming, van Giesen.) There are found newly formed fibres with dark myeline sheaths and distinct Ranvier's nodes, but they are still much narrower than the old fibres. At the place of union several bundles may be seen to lie totally within the circle formed by the transverse section of the myeline sheath. Altering the focus shows that the nucleus tapers till it vanishes and there is only left a normal transverse section: homogeneous contents within a sharp myeline sheath ring. The nucleus appears to be the intersected upper part of a spindle-shaped

nucleus lying within the myeline sheath. Schiff and Bruch supposed that in normal nerves there were spindle-shaped nuclei, but that they were hidden by the myeline sheath and therefore were not observed. By pathological processes (apoplexy, myelitis, retinitis) Adamkiewicz, Virchow, Arndt, Roth, and Müller were enabled to demonstrate "axis nuclei." Ziegler has found nuclei within the myeline sheath with axial position in teasing preparations from the twelfth day after strangulation of a nerve. In cross sections he found at the same time axis-cylinder nuclei within the myeline sheath and nuclei of the Schwann sheath outside. He thought that these nuclei during the differentiation reassumed their position in the "outer protoplasma mantle" outside the myeline sheath. When the myeline sheath is absorbed nuclei appear which differ from other nuclei in the nerve by their form, colour, and situation in the midst of the protoplasmic mass that takes the place of the myeline sheath. Nuclei of the same sort are found in the newly formed fibres that still have a thin myeline sheath and on cross sections of nerve fibres may be seen nuclei that are situated totally inside the myeline sheath. These observations lead me to suppose that the opinion of Schiff and Bruch was correct. This opinion will be further discussed with the employment of other staining methods.

*Tenth day.*—(Müller's fluid, van Giesen.) Near the place of union are seen masses of dark nuclei diminishing in number from the place of union in a central direction. The same forms of nuclei are found as in the osmic acid preparations—long rod-shaped or spindle-shaped nuclei parallel to the longitudinal axis of the fibre. They are darkly stained and many of them are dividing along a plane through the longitudinal axis. Some of the nuclei seem to be buried under the myeline sheath and it is impossible to make them quite visible by altering the focus; some of them are surrounded by a light red zone that prolongs itself as a stripe along the nerve fibre, either along the middle or along one of the sides. In teased sections it may be seen that thin threads are detached from the nerve fibres more than a centimetre from the place of union. These threads are light red and all of them have long black rod-shaped or spindle-shaped nuclei. They seem to be flat with a thicker stripe from the ends of the nuclei along the middle line. In one place is seen a light red thin thread that seems to have just been detached from an old nerve fibre. In the central direction it joins the old fibre as an even protoplasmic thread and fuses with it, so that it is impossible to distinguish between them. In the peripheral direction it is totally detached and ends in a tapering curled process. On the middle of this thin thread there is a thin long nucleus that gives the impression that it is the one-half of a recently divided nucleus. Opposite it there is on the nerve fibre a similar long black nucleus appearing to be the other half. It cannot by any adjustment of the tube be distinguished from the nerve fibre but seems to belong to it. Some of these thin fibres have re-divided apparently in connexion with the division of the nuclei. In each of the branches near the division there is a thin long nucleus that on the one side is sharply contoured and intensely black-coloured, while on the side towards the nucleus of the other branch it affords a light margin. By tracing the fibre it is apparent that the two branches join together to make one. (Plate IV., Figs. 6 and 9.) Tracing the fibre further in a central direction it appears that it has still one nucleus that is just going to be divided but is not yet divided. The long nuclei in the newly formed fibre in outward appearance, mode of division, and colour correspond with the spindle-shaped nuclei belonging to the nerve fibre. They are only somewhat thinner. Approaching the place of union the newly formed fibres increase in number while the fibres of normal appearance decrease; the latter ones are of a homogeneous, light red, protoplasm-like appearance, have numerous long nuclei, and seem totally to be dissolved into these thin threads with nuclei that appear to form the bulk of the striped tissue with long nuclei at the place of union. (Plate IV., Figs. 9 and 10.) These threads, that must be supposed to be formed by division of nuclei and division in the protoplasmic mass that is surrounding the nucleus by the absorption of the myeline sheath, by Weigert's myeline sheath stain show the beginning of formation of new myeline and thus must be identical with the threads with nuclei that in osmic acid preparations proved to be young nerve fibres. In teased sections there are found membranous bands of a peculiar shape. They are rather broad at the place of union, but then taper in a central direction, and with the point they seem to close around a bundle of fibres. Some of them may be seen to join a thin membrane lying close to one or more nerve fibres, becoming visible as it is split and torn loose at the junction. The membranes have numerous round or oval, sometimes irregular, nuclei. Some of these membranes seem to be a part of the perineurium, converging till they inclose a bundle of nerve fibres. Others inclose with the point a bundle of newly formed fibres, that by being traced, as far as can be seen, originate from a single nerve fibre. (Plate IV., Fig. 10*a* and 10*b*.) Farther from the uniting place is seen a couple of isolated fibres, on the surface of which are seen two bluish-grey granulated nuclei. They are surrounded by a lighter halo of the breadth of the nucleus. The nucleus does not resemble the rod-shaped nuclei and the surrounding halo has no likeness to the light red protoplasm zone that is found surrounding the rod-shaped nuclei. (Plate IV., Fig. 8.) The nuclei give the impression of belonging to flat cells lying outside the fibres and belonging to the membranous bands that may be found torn loose from the surface of the nerve fibres and that join the bands diverging towards the place of union. The observations make me believe that the *sheath of Schwann belongs to these connective tissue membranes* and that its nuclei partake in the proliferation and that during the proliferation they are either burst by the newly formed fibres or they become friable so that they split during the teasing. In the following weeks the microscopical appearances slowly change. Besides the described form of division of the spindle-shaped nuclei with the cleaving off of fibres there is still found another form of division. The nucleus is divided by an oblique longitudinal plane, after which the two halves project beyond each other, so that the result will be two nuclei on the same thread instead of two different threads. As a result of this form of division there may be found in the neighbourhood of the place of union rows of long nuclei on one fibre. The newly formed fibres by-and-by get thicker. While in the first stages they have the appearance of tapering processes or threads from the ends of the spindle-shaped nucleus, later they are found as even threads of the breadth of the nucleus. Still farther on are found nuclei lying totally within the margin of the fibres. At a time when, according to what has before been found, there must be supposed to be motor conduction the place of union in van Giesen preparations has about the same appearance: the fibres have an even, homogeneous, almost translucent appearance, and there are found nuclei in great number.

*Forty-fifth day.*—There is now found Ranvier's node and on both sides of this a spindle-shaped nucleus, quite within the contours of the fibres. (The preparation unhappily was destroyed before it could be photographed.) In sections from the sixtieth day fully developed nerve fibres are found; they have a still more translucent appearance and are thinner than the old fibres. At the same time may be found fibres that by their whole appearance prove to be younger.

*Twelfth day.*—(Weigert's myeline sheath stain.) About one centimetre from the place of union the myeline sheaths begin to be unevenly coloured. Then there come longer and longer parts that are not coloured and in the vicinity of the place of union there is found only yellow-brownish tissue with numerous black nuclei. The myeline sheaths are absorbed and only in a few fibres are seen remnants of broken-up myeline sheaths. The same forms of nuclei are found as in preparations stained after van Giesen. The spindle-shaped nuclei in sections have greyish processes. In teased sections there are found thin threads detached from the nerve fibres almost two centimetres from the place of union. They are placed within the sheath of Schwann and have spindle-shaped thickenings containing long nuclei. Along the outer side of the nucleus is seen a dark stripe.

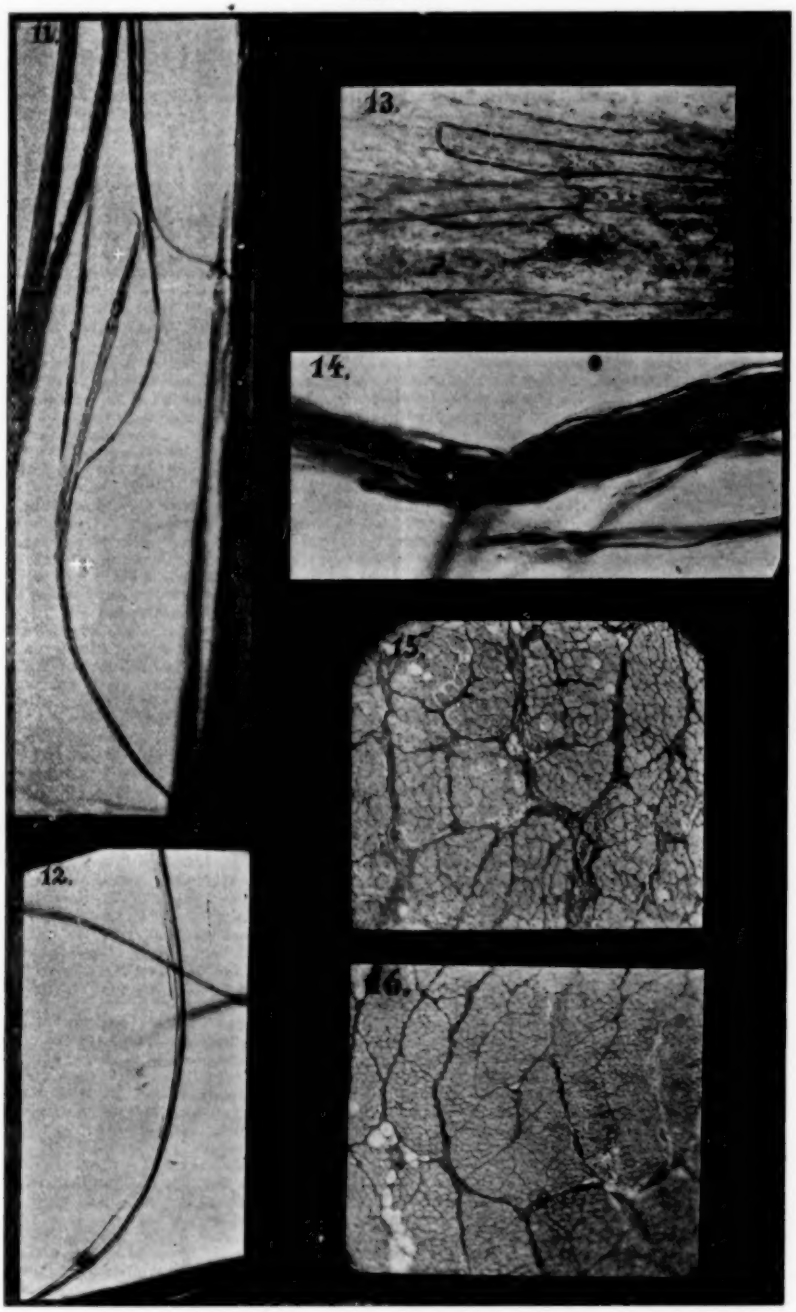
*Eighteenth day.*—In the sections thin grey stripes, increasing in number towards the place of union, are seen more distinctly. Here they lie in closer connexion with spindle-shaped nuclei that, as it were, lie in a groove in the newly formed myeline stripes.

*Twenty-fourth day.*—The number of myeline stripes increases towards the place of union, spreading like a hair-pencil. They are thicker and darker coloured. The nuclei have undergone a strange change. They are not so darkly stained, they have an uneven granulated appearance, and they are to be seen in variegated colours. Some of them lie in a groove of the dark myeline sheath. For others the myeline sheath has formed a cavity; in other places a shadow is seen from the myeline stripe passing over the nucleus that

has itself become less distinct. In other places the nucleus can be seen faintly in a spindle-shaped thickening of the myeline sheath. At last there are spindle-shaped thickenings of the myeline sheath where no trace can be seen of the nucleus. The impression is that the myeline sheath is formed in the new fibre, making its appearance at first as a thread-like formation on the outer side—on the side away from the "wound." And then by-and-by it spreads in the periphery of the fibre round the nucleus inclosing it.

From the twenty-fourth day the spindle-shaped nuclei rapidly diminish in number in the Weigert preparations. At the same time the newly formed fibres increase in thickness and the spindle-shaped thickenings become less pronounced. In Weigert's preparations, also, Ranvier's nodes

PLATE V.



have been seen on the forty-fifth day. At the same time that the firstly formed fibres are further developed new fibres are steadily formed, but in decreasing numbers. In preparations from the sixtieth day may be found fibres at different stages of development. (Plate V., Fig. 12.)

In successful Weigert preparations, especially after formalin hardening, the young fibre is often seen in a very characteristic way. Just before the formation of the new fibre the original fibre is getting darker and granulated. Then suddenly is seen the newly formed fibre as a dark, black, even streak along the middle or along the side of the old fibre. Plate V., Fig. 11, shows an old nerve fibre with Ranvier's node. The old fibre is broken on the peripheral side of Ranvier's node, and by this the newly formed fibre has been torn out of its position and has been broken higher up and turned round. Thus it may be seen that it is not so darkly coloured as on the outer side. On the other side of the Ranvier's node there is seen another newly formed fibre. In van Giesen's preparation may be seen a corresponding appearance, the old fibre being brownish and granulated, and then there is suddenly seen an even light-red homogeneous streak along the middle or side of it.

Near the place of union numerous bundles of fibres have been cut transversely. These transverse sections have a different appearance. Most of the fibres show a sharp, black marginal contour and without this only a homogeneous mass —the axis cylinder. On altering the focus it has the appearance of a tube that may be traced twisting through the mass of fibres. In some of the cross sections is seen a sharp black nucleus within the sharp outline of the myeline sheath exactly in the same situation and with the same appearance as was found in osmic acid preparations.

*What is the relation between the spindle shaped nuclei or the cells to which they belong and the nerve segments?*—In the preparations may be found several things which indicate that the segments by formation are single cells. In the fibres which are cleft off from the old fibres there are found few nuclei and long intervals between them; in better developed fibres there may be found long segments. In the vicinity of the place of union, where the fibres are growing out in a longitudinal direction, the nuclei projecting past each other, there may be found many nuclei with short intervals, and by staining with Weigert's myeline sheath stain there are found short segments. In the side of the uniting place there may often be found single fibres isolated in the connective tissue that seem to have been delayed in their development. They often have a characteristic appearance. The dark colour indicates that they are not quite young fibres, but that they have been delayed in their development, one must believe, on account of their growth in dense connective tissue. (Plate V., Fig. 13.) They are divided into short pieces and between the pieces are distinct intervals. In these pieces, that must be regarded as segments, there are spindle-shaped thickenings that, from what has been mentioned before, must be supposed to contain a nucleus. In some places is found one nucleus on each side of an interval and sometimes between these nuclei is found a granulated uneven connexion that seems to indicate that division of a nucleus has taken place. In other places the interval is found between the end of one nucleus and the process of the following one, or in the middle of the process between these nuclei. Similar nerve fibres composed of nuclei with processes are found in the peripheral part where the development is delayed, for example, where the union has not occurred with the central end. (Plate V., Fig. 14.) These circumstances indicate that a nerve fibre is composed of a row of cells where the Ranvier's node forms the limit of the cell. Ranvier asserts that the nucleus of the sheath of Schwann is situated in the middle of the inter-annular segment. This does not always take place as far as regards the spindle-shaped nucleus. Not only in newly formed fibres but also in old fibres I have found rows of segments with one spindle-shaped nucleus in one of the ends in the vicinity of the node, while in other segments they have been situated in the middle. During the further development the spindle-shaped thickenings are levelled and by-and-by the intervals between the cells become shorter so that they will join close together. Thus there will be formed rows of cells that must be considered well fit for forming continuous conducting lines—long cylindrical cells with an isolating coat of myeline and an inner conducting mass. The isolating layer is absent at the poles of the cylinders at Ranvier's node. Thus a continuous conduction is present from one cell to another, while the isolation is further secured by the occurrence of the limits of the cells alternating. I have found no sign that the segments can fuse together so that one segment might contain more nuclei.

### THE PERIPHERAL PART OF THE UNITED NERVE.

*Seventh day.*—(Flemming's safranin.) The changes in the peripheral part are of far more marked character than in the central part. The nerve fibres have the appearance of tubes filled with irregular masses of myeline. In some places there are seen longer pieces of myeline sheath with rounded ends inclosing a piece of the axis cylinder, and in other places oval or round pieces or irregular myeline masses. Some of the pieces have distinct dark-coloured even myeline margins, others are lighter and have only an uneven thin brownish margin. In some pieces of the fibre the myeline sheath has almost completely disappeared and there is seen only a protoplasm band of the breadth of the nerve fibres with nuclei. The same forms of nuclei are found as in the central sheath—long spindle-shaped or rod-shaped nuclei situated in the longitudinal direction of the fibres. In teased sections they may be seen to possess long processes that are coloured brownish by osmic acid and may be traced as long threads along the myeline mass within the old Schwann's sheaths. A single nucleus with processes was found torn loose. (Plate IV., Fig. 4.) There are found long, narrow membranous bands with oval, round, or irregular nuclei that are stained less than the spindle-shaped nuclei. These bands here are of even breadth, not tapering as in the central sheath. Then there are found irregularly shaped dark-stained nuclei entering in between the myeline remnants (phagocytes). The changes are completely characteristic in the whole of the peripheral part and an essential difference is not found between the different fibres. They are similar to the changes that are found in *a few* of the fibres of the central end.

*Twenty-fourth day.*—(Weigert's myeline sheath stain.) The brownish-yellow protoplasm in the nerve fibres has become darker and brownish-grey stripes indicate that the formation of myeline has begun.

*Thirtieth day.*—Distinct stripes of myeline are found equally distributed in the whole of the peripheral part. They appear here in the same manner that was observed in the central part with the same changes of the spindle-shaped nuclei. In following days the fibres increase in thickness while their development is steadily carried on uniformly in the whole of the peripheral part but more slowly than in the central part.

*Fifty-fourth day.*—(Marchi's fluid; Weigert's myeline sheath stain.) In the whole of the peripheral part thin, even grey-coloured fibres with spindle-shaped nuclei are seen. (Plate IV., Fig. 5.)

### THE CENTRAL END OF THE INTERRUPTED AND NOT UNITED NERVE.

Soon after division the central end is found to be swollen, soft, and yellow, and the fibres are loosely connected. In the later stages the end is harder and is found to have grown fast to the surrounding tissue. It is club-shaped and conical at the end and has a string-shaped or more membranous continuation tapering in the peripheral direction. In longitudinal sections from the sixtieth day there may be found newly formed fibres, both in the bulb and in the conical part. At first the fibres are of normal appearance and thickness, then they are replaced by newly formed fibres in increasing number so that a bundle of newly formed fibres has taken the place of the original nerve fibre within the same sheath. The old nerve fibres are distinctly marked, partly by this arrangement of the new fibres, partly by the occurrence of remnants of myeline in the thickest part of the bulb. Here a strange change is observed; the new fibres spread in all directions coming out of the old Schwann's sheaths. New fibres and bundles of fibres are crossing in all directions irregularly and cut across, now in longitudinal, then in transverse or oblique direction. Some bundles turn backwards and grow in a central direction along the nerve, others enter into the surrounding tissue or in the subjacent muscles where they may be found as irregular roots. The greatest mass grows in a peripheral direction, diminishing rapidly in number and at the point there are only found a few bundles buried in a dense yellow-brownish connective tissue.

THE PERIPHERAL END OF THE INTERRUPTED AND NOT UNITED NERVE.

Soon after division softening of the whole of the peripheral part is observed. It becomes thicker, yellow, and saturated with fat and its fibres are loosely connected. Then the nerve becomes firm again and it has a more normal appearance. The divided end is not free but grows fast to the subjacent muscles.

*Twelfth day.*—The nerve at the point of the peripheral part as a jelly-like mass half a centimetre in length.

*Thirtieth day.*—The peripheral end appears as a broad band stretching upwards along the subjacent muscle.

*Thirty-eighth day.*—The peripheral end has a jelly-like prolongation upwards against the popliteus and at the point it looks like granulation tissue. The whole prolongation has grown fast to the subjacent tissue. By microscopical examination of longitudinal sections one part of the sections has the appearance of being the degenerated nerve on account of the contents of remnants of the myeline sheath within the old Schwann's sheath. By examining preparations taking from different stages of development the same changes are found in the peripheral part of the interrupted nerve as in the peripheral part of the united nerve, with the difference that the reabsorption of the myeline remnants and the formation of new myeline sheaths proceed slower. In preparations on the tenth and eighteenth days there is no special difference between them.

*Twenty-fourth day.*—In the united nerve may be seen commencing formation of myeline. In the interrupted nerve no trace can be found.

*Thirtieth day.*—The united nerve has distinct black myeline stripes. The interrupted nerve only shows traces of myeline formation on the thirty-eighth and forty-fifth days and distinct dark myeline stripes on the fiftieth day. (Plate V., Fig. 14.) Without the part of the sections that are seen to originate from the old fibres corresponding to the jelly-like tissue there is found near the place of section a tissue with numerous nuclei of the same sorts as has been formerly mentioned. In preparations from the sixtieth day newly formed myeline sheaths are found in this granulation tissue radiating from the old sheaths of Schwann. Thus, it must be supposed that there have not only been formed new fibres in the peripheral part of the interrupted nerve but that nerve fibres have also grown out in a central direction.

As to the place of union, when a nerve is divided the ends at once retract somewhat. Then in the first few days they swell, fill out the wound, and approach somewhat to each other. They grow fast opposite each other, both ends shooting fibres as roots into the surrounding tissue. Then the nerve fibres in the end proliferate and the young nerve fibres grow out from the old Schwann sheath and spread like a fan. If the distance is short then the nerve fibres will meet with a broad surface and fuse together, as may be seen by reference to Plate III., Fig. 1. If the distance is prolonged the ends at first get fixed, their fibres spreading fan-like and some of them growing wildly in all directions in the surrounding tissues, forming rows of short segments with spindle-shaped thickenings. The greatest mass again forms thicker bundles crossing between the ends of the nerve. It appears as if the fibres that first come into connexion with fibres from the other side develop more quickly and form conductors for the fibres which follow.

The development in the peripheral part is a long time behind the development in the central part. Thus longitudinal sections of sutured nerves often have a characteristic appearance. In the sections the place of union is marked by the divided suture threads. The newly formed fibres form whorls with deflected bundles from the tension of the silk thread on the nerve. At the same time may be distinctly seen the difference between the development of newly formed fibres in the central and peripheral part. In some of the sections fibres from the peripheral part have been drawn completely past fibres from the central part and thus fibres at the later stage are found more central than fibres from an earlier stage. In preparations from the thirtieth day there may be seen in the parts belonging to the central end dark-coloured myeline sheaths with very few visible nuclei; in the parts belonging to the peripheral end only thin myeline sheath stripes. Only after the lapse of a longer time (from 10 to 12 weeks perhaps after suture) may be seen a tendency for the newly formed fibres to arrange themselves in a longitudinal direction of the nerve. The fibres fuse together so that fibres may be traced continuously past the place of suture. At the same time the difference between the fibres on both sides of the place of union is less distinct.

PREPARATIONS OF MUSCLES FROM THE THIRD SERIES OF EXPERIMENTS.

This series has not been sufficiently even and complete to study fitly the details of the changes that take place in the muscle when its nerve is interrupted. Still it shows many peculiar circumstances that make it an interesting topic for examination. The microscopical examination, however, verifies on the whole the result found by the weighing. Up to the thirtieth day there is no prominent difference on the side of the united or the interrupted nerve. In preparations from the tenth and eighteenth days is found proliferation of the nuclei of the sarcolemma and some of the nuclei are found within the limits of the transverse section of the muscle fibre. The transverse sections of the muscle fibres have in several parts lost their polygonal form and have become more rounded. The connective tissue between the muscle bundles has increased but is not yet found in a greater or larger amount between the single fibres.

*Thirtieth day.*—Most of the muscle fibres have almost circular transverse sections and are of very different thickness, some of them being thicker than normal, some thinner. Every fibre is surrounded by connective tissue with numerous nuclei. In some parts the fibres have a more normal appearance with polygonal-shaped transverse sections and less connective tissue. On the side of the united nerve the fibres appear to be of somewhat more even size and are perhaps surrounded by not quite so much connective tissue.

*Thirty-eighth day.*—The muscle fibres on the side of the interrupted nerve are uneven, in longitudinal section are twisted, and in transverse section are of different sizes, some of them being round and some of them irregular. All fibres are surrounded by connective tissue and in the centres of the muscle fibres are seen numerous nuclei. On the side of the united nerve there is also plenty of connective tissue surrounding the fibres, but the fibres in several places have taken on a polygonal form. There are numerous nuclei but these are situated more in the surroundings of the fibres and less in the substance.

*Fiftieth day.*—On the side of the interrupted nerve is observed a red margin of connective tissue round every fibre. Still, the transverse sections have a more normal appearance than in the last observation, with a tendency to polygonal form, and on longitudinal section the fibres are more even and have distinct transverse stripes. On the side of the united nerve the connective tissue is less prominent. The fibres in several parts lie close together and have assumed a polygonal form.

*Sixtieth day.*—At this stage as well as in the preparation from the fiftieth day it is notable that the fibres in the muscle of the interrupted nerve have assumed a more normal appearance in more parts than in the preceding stages. On transverse section they are found to be more polygonal and on longitudinal section to be more even. The connective tissue has increased in thickness between the single fibres as well as between the bundles of fibres. The nuclei seem to be less numerous in the connective tissue. On the side of the united nerve the transverse sections have for the greater part assumed polygonal forms, lie closely packed, and are surrounded by little connective tissue. Both on the side of the united and of the interrupted nerve in some parts are still seen fibres in degeneration, being on transverse section round or irregular with numerous nuclei in the substance of the muscle fibres and surrounded by plenty of connective tissue. This is far more prominent in the muscle of the interrupted than in the muscle of the united nerve. (Plate V., Figs. 15 and 16.) Thus it appears that a process of degeneration is taking place in the muscle of the interrupted as well as of the united nerve in direct connexion with the division of the nerve. It culminates about the thirtieth day and is followed in the muscles of the united nerve by regeneration; on the side of the interrupted nerve there also seems to take place a certain degree of regeneration. However, interstitial connective tissue steadily increases, becomes quickly organised, and at the same time the muscle fibres decrease, some of the fibres being quite ruined.

CONCLUSIONS.

When the investigations which are now communicated are shortly summed up the result will be as follows.

The peripheral nerves consist of rows of long cells tha

have an isolating myeline sheath and within this a homogeneous conducting substance—the axis cylinder. The myeline sheath is absent at the poles of the cell at the Ranvier's node and thereby the axis cylinder is in conducting connexion with the axis cylinder of the preceding and succeeding cells. The nerve cell must thus be considered to be fit for forming continuous conduction and it may well be supposed that the cell of the brain, the row of cells of the nerve fibre, and the muscle fibres or the sensory end apparatus may form a physiological unit.

The nerve cell within the myeline sheath has a long nucleus and it proliferates by division of the nucleus, the myeline sheath round the nucleus being absorbed and replaced by protoplasm. The new cell is cleft off as a thread in this protoplasmic mass. In the new cell the myeline sheath is formed as a thread or column on the side turning away from the "wound" and then spreads in the periphery of the cell round the nucleus and the protoplasm of the cell that forms the new axis cylinder. This process is found in the central end after division of a nerve. New fibres or rows of cells are formed partly by cleaving off from the old fibres, partly by growth from the end. The whole process has for its aim the healing of the nerve.

In the peripheral part the changes are of a more vital importance; the contents of the old cells—the myeline sheath and axis cylinder—are apparently ruined. They coagulate, they are broken into balls and irregular masses, and by-and-by they are re-absorbed without partaking in the formation of new fibres in the way that must be supposed to take place in the central part. Remnants of the old myeline sheath may be found after the lapse of a long time when the newly formed fibres have already reached a considerable degree of development. In the peripheral part also regeneration begins immediately after the division. The nerve nuclei begin to proliferate, and after the lapse of a few days—the seventh day—they are found to possess long processes which may be traced for long distances and which seem to be in connexion with similar processes from other adjacent cells. By-and-by they are developed in the same way as the newly formed fibres in the central end and during the further development they may be traced as continuous nerve fibres.

When a nerve is divided it will lose its motor conductivity only after the lapse of some time. Leegaard and Howell and Huber state that the time which elapses before irritability is completely wanting is from one to four days. Regeneration begins immediately after the division of the nerve and takes place hand in hand with degeneration, so that after a short time (seven days) long threads are found that by-and-by are developed into active nerve fibres. Thus there cannot be any objection to the assumption that there may be a certain degree of sensory conduction during the whole process of regeneration.

There appears to be complete correspondence between the clinical symptoms and the development found in the divided nerve. In primary as well as in many cases of secondary suture it has been noticeable that sensation seems to be distinctly better immediately after suture than after the lapse of some days, and then it recovers again more or less slowly. It has not been possible to show this circumstance by illustrating the forms of sensation, but it seems to agree well with the rapidly increasing degeneration that may be supposed to cause diminishing of the power of conduction that can only by-and-by be replaced by the slowly proceeding regeneration.

About the thirtieth day in the rabbit there is found an advanced development of the myeline sheath in the newly formed fibres in the peripheral part. About the same time may be observed motor power and somewhat later the muscle begins to increase in weight. The motor power by-and-by is increased and after the lapse of some time there is found electrical reaction.

The injured nerve is a bad conductor; the longer the piece of nerve which is hurt the greater is the resistance that has been introduced in the conduction, and thus a higher degree of regeneration must be supposed before it can be expected that an impulse will cause movement. From this it follows that the further from the periphery a nerve is hurt the longer time it will take before motor power may be affected and the slower the recovery. This also agrees with clinical and experimental experience, but it cannot be taken as evidence that the nerve is growing out from the central end, as has been assumed by Vanlair and others.

It is of importance to know when an operation is necessary after a nerve has been injured. Experiments on animals show that a divided nerve unites equally rapidly whether it is sutured or not. Daily experience shows the same, as it is more seldom to see nerve disorders after injuries or operations than might *a priori* be expected. Thus suture is not in all cases necessary, but the reason why it ought not to be omitted is that sometimes circumstances take place which may prevent the union and function of the nerve. In this respect infection of the wound is of fatal significance, leading to the formation of dense scar tissue. Then there is dislocation of the ends of the nerve, as may be found in incarceration of one of the ends by fracture or by violent interruption of the soft tissues.

If union of the nerve has not occurred or if it is incomplete examination of sensation gives means of determining when interference is required. Clinical experience shows that full functional union may only be expected for a certain time. After the lapse of perhaps three or four weeks the tissues about the ends of the nerve are transformed into a dense scar tissue that will be an obstacle for the further development and growth. About the same time a similar change will take place in the muscles, the interfibrillary tissue with numerous nuclei being transformed into organised connective tissue. After this time no complete recovery may be expected and in the meantime the muscles suffer greater and greater harm, possibly not to be repaired if sufficient nerve conduction is not procured by operation.

In the third series of experiments it has been shown that the development in the nerve as well as in the muscle is about the same on the side of the interrupted and the united nerve soon after operation. By experiments it may be shown that union can be effected without essential delay of the regeneration, even if the ends of the nerves are not in contact at first. In a rabbit where the central end had been divided subcutaneously and fixed apart after 10 days there was performed secondary suture. Electrical reactions occurred on the fifty-seventh day after division of the nerve and the interruption had not caused any delay. On another rabbit secondary suture was performed 53 days after the interruption. Still 100 days after suture electrical reaction had not been observed and the muscles corresponding to the nerve were atrophied. By microscopical examination there proved to be an abundant development of organised connective tissue between the muscle fibres which were very thin and scarce in number, and some part of the muscles showed complete fatty degeneration. There was only incomplete regeneration and the muscle was severely damaged.

The time that may elapse before operation is done without the risk of slow and possibly incomplete recovery may scarcely be estimated at more than about one month. The new nerve fibres grow out with most activity in the first few weeks, and if union does occur it will be rapidly succeeded by recovery of sensation. If sensation does not return or if it is incomplete or is proceeding slowly at the time when scar tissue has been formed, this must be taken as a symptom that serious obstacles to the union of the nerve are present and that complete restitution may not be expected without operation. Therefore it is of great importance that the development of sensation should be controlled, and in this respect I must join in the opinion of Leegaard about its importance for diagnosis and prognosis. As has been mentioned, the injuries suffered by the muscle increase in proportion to the time that elapses before an interrupted nerve is sutured. Secondary suture may, however, it appears, be performed with good result after the lapse of a long time. Jessop relates a case where after the lapse of nine years after division of the ulnar nerve above the wrist there were still complete anæsthesia and paralysis. Secondary suture was performed with the result that sensation returned after eight days, motor power after 10 weeks, and full restitution after nine months. Both with primary and secondary suture it cannot be considered of any great importance what sort of suture material is used or how the nerve suture is performed—the essential thing is that the suture should be made *aseptically*. In secondary suture it is of importance that not only all scar tissue should be removed but also that the outermost part of the end of the nerve should be cut off, the nerve fibres being buried in dense connective tissue.

DESCRIPTIONS OF PLATES IV. AND V.

(The figures on Plate IV. and V. are reproductions from microphotographs of preparations of rabbits' nerves. They are not retouched.)

*Plate IV.*—Fig. 1, four nerve fibres of normal thickness. On the middle of the second fibre the myeline sheath is absorbed for about half the thickness of the fibre and replaced by protoplasm. In the

protoplasm mass is seen imbedded a nucleus. Osmic acid, safranin; Leitz, ob. 7, oc. 3. Figs. 2 and 3, newly formed nerve fibres with nuclei from the central end 36 days after division of the nerve. Osmic acid, safranin; Leitz, ob. 7, oc. 1. In Fig. 4, in the uppermost part of the preparation is seen a spindle-shaped nucleus with detached process. Below this is seen a degenerated nerve fibre with balls of myeline and farther down spindle-shaped nuclei with protoplasm processes. The peripheral part seven days after division of the nerve. Osmic acid, safranin; Leitz, ob. 7, oc. 3. Fig. 5, newly formed nerve fibres with nuclei from the peripheral part. Fifty-fourth day, Marchi, Weigert's stain; Swift, ob. ½ inch, pr. oc. 2, 108/1. Fig. 6, newly formed fibre being detached from an old fibre. Its nucleus has re-divided. Tenth day, van Giesen; Leitz, ob. 7, oc. 1. Fig. 7, newly formed nerve fibre with spindle-shaped nucleus between two old nerve fibres. On the old fibres are seen two shorter nuclei that are supposed to belong to the sheath of Schwann. Central part, tenth day, van Giesen; Leitz, ob. 7, oc. 2. Fig. 8, from same preparation. The microscope has been focussed upon two nuclei outside the old fibres. Fig. 9, a newly formed nerve fibre with nucleus is seen detached from the tissue full of nuclei near the place of union. The nucleus and the fibre are about to be re-divided. Farther in a central direction on the fibre is seen a piece of myeline and still further central is a nucleus which is not yet divided. From the central part, forty-fifth day, van Giesen; Swift, ob. 1·6 in., pr. oc. 2, 332/1. Fig. 10, *a* and *b*, two bundles of newly formed fibres from the central end of a nerve in the neighbourhood of the place of union. Between the ends of them are seen a single detached nucleus with a fine slender nerve thread. Behind and to the side of them is seen a connective tissue band tapering in a central direction. From the central part, forty-fifth day, van Giesen; Swift, ob. ½ inch, pr. oc. 2, en. 113/1.

*Plate V.*—Fig. 11, in the lower part of the figure is seen a nerve fibre of normal thickness. At first it is darkly stained and of granular appearance, then a newly formed fibre as a black streak along the middle of the old fibre is seen suddenly. The old fibre is torn on the other side of Ranvier's node +, after which the young fibre is seen detached and broken farther in a central direction + +. On the other side of Ranvier's node is seen another piece of newly formed fibre. Central piece, sixtieth day, formalin, Weigert's myeline sheath stain. Fig. 12, detached fibres in different stages of development near the place of union. Central piece, sixtieth day, formalin, Weigert's stain; Swift, ob. ½ in., pr. oc. 2, en. 120/1. Fig. 13, nerve fibres with short segments and spindle-shaped thickenings. From the connective tissue near the place of union. Seventy-seventh day, Weigert's myeline sheath stain; Swift, ob. ½ in., pr. oc. 2, en 90/1. Fig. 14, newly formed nerve fibres from the peripheral part of the interrupted and not united nerve. Sixtieth day, Weigert's myeline sheath stain; Swift, ob. 1·6 inch, pr. oc. 2, en. 340/1. Fig. 15, transverse section from the muscle of the interrupted nerve. Sixtieth day, van Giesen; Leitz, ob. 7, oc. 1. Fig. 16, transverse section from the muscle of the united nerve. Sixtieth day, van Giesen; Leitz, ob. 7, oc. 1.

Christiania.

## THREE CASES OF LIGATURE OF THE COMMON CAROTID ARTERY.

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DURING the past year in three cases I have had to tie the common carotid artery at the London Temperance Hospital. The results in the first two cases may justify their publication. I am indebted to Mr. J. S. Hosford, the surgical registrar for memoranda from which I have drawn up the following notes.

CASE 1. *Intracranial aneurysm; ligature of the common carotid artery; recovery.*—The patient was a man, aged 54 years, who had suffered from bronchitis and asthma, had taken a good deal of alcohol, gave no history of syphilis, but gave an account of having suffered from both hæmoptysis and hæmatemesis some 14 years ago. His present illness began with a fall in the first week of December, 1902, in which he struck the right brow. He vomited but did not lose consciousness. Three days afterwards he began to see double and his wife observed that he had a cast in the right eye. He attended at the Royal Eye Hospital, where proptosis of the right eye was observed in the early days of January, 1903. Some chemosis and ecchymosis of the conjunctiva of the right lower eyelid were also noticeable and the patient complained of some pain and noise in the head. I admitted him into the London Temperance Hospital under my care on Jan. 9th. On admission the patient was a thin, spare man looking more than his age. There was marked proptosis of the right eyeball, and on palpation distinct pulsation was to be felt around the globe, in the region of the upper lid. A loud systolic bruit was heard over the right temporal, frontal, and superciliary regions. There were chemosis and hæmorrhagic discolouration of the conjunctiva of the lower lid, with some sero-sanguineous discharge, increased by some ectropion of the lid. The right cornea was clear and the globe seemed to be natural, though displaced somewhat forwards and outwards. The media and fundus were normal. Vision was ⅔ and J. 1, with + 3 D. The left eye was normal. The patient complained greatly of the blowing noise within the head which prevented him from sleeping. I diagnosed intracranial aneurysm and decided to tie the right common carotid artery. On Jan. 19th the patient was placed under chloroform. During the struggle while passing under the anæsthetic there was some oozing of blood from the right orbit. I then tied the common carotid with kangaroo tendon, just above the right omo-hyoid muscle. Pulsation of the globe at once ceased and the bruit was no longer audible. On the next day (Jan. 20th) the patient was very comfortable and was greatly relieved by the complete cessation of the noise in the head. The ligation wound healed per primam in a week. On Feb. 6th proptosis was still present and there was considerable ectropion of the right lower eyelid from solid œdema of the conjunctiva. On several occasions a temporary return of the bruit (though never so loud as before) was observed both by the patient himself and with the stethoscope by others. On other days no bruit whatever could be heard on careful auscultation. The patient was kept under close observation during the month of March and no pulsation or bruit was on any single occasion detected. Some ectropion of the lower eyelid still continued. He was discharged on March 31st.

CASE 2. *Sloughing and hæmorrhagic ulceration of the right tonsillar region (? malignant); ligature of the common carotid artery; great amelioration.*—The patient, a man, aged 53 years, a labourer, had enjoyed fair health, with the exception of double inguinal hernia, until January, 1901, when he began to suffer from an ulcer on the buccal mucous membrane of the right cheek. There was no history of syphilis. A month later a fulness was observed in the right temporal region. The ulcer and the temporal swelling continued to increase and on May 8th, 1902, he was admitted to the London Temperance Hospital under my care. On admission the patient was rather flabby and cachectic, with rigid arteries and some emphysema. His breath was very foul, he was unable to open his mouth, and a large diffuse swelling occupied the region above and below the right zygoma. A few enlarged glands could be felt in the upper triangles of the neck. So far as the imperfect examination of the mouth permitted a sloughing and bleeding ulcer appeared to occupy the region of the right tonsil and anterior pillar of the fauces extending to the buccal mucous membrane. An incision of the temporal swelling yielded nothing but blood. During the week after his admission he on several occasions had sharp attacks of hæmorrhage from the mouth and also from the incision which had been made in the temporal region. The fœtor from the mouth was abominable, the pain was very great, and the patient was fed with great difficulty; moreover, hæmorrhage of a dangerous amount appeared to be imminent. Having diagnosed malignant disease of or around the right tonsil I advised, and on May 15th performed, ligature of the right common carotid artery. The patient took the anæsthetic well and the ligation was effected just above the omo-hyoid muscle. The wound healed per primam. On June 4th the patient was much improved in his general condition, the pain was greatly relieved, and there had been no return of hæmorrhage. The patient was discharged and on August 14th presented himself as an out-patient, looking remarkably well. The swelling had completely disappeared and though there was still some ulceration of the mouth there had been no hæmorrhage and there was no fœtor.

CASE 3. *Recurrent carcinoma of the tongue, tonsil, and floor of the mouth; ligature of the common carotid artery.*—A married woman, aged 37 years, a multipara, was admitted into the London Temperance Hospital under my care with a small ulcerated swelling in the right side of the tongue. The right half of the tongue was excised after ligature of the lingual and some glands were removed from below the jaw in January, 1902. At the time of this latter operation the patient was pregnant. On March 13th, 1902, she was readmitted with a return of undoubted epithelioma of the base of the tongue. On Feb. 18th she had been delivered of a dead fœtus. The new growth involved the tonsil and was firmly planted in the tissues around the tonsil and angle of the jaw and did not admit of removal. On March 20th, under chloroform, I ligatured the right common carotid artery immediately above the omo-hyoid muscle, with a view to check the growth. The wound healed per primam and the patient left the hospital on April 13th in less pain and in improved general health, but without any marked change in the size of the tonsillar growth.

Regent's Park, N.W

# NARCOTILE, BICHLORIDE OF METHYL-ETHYLENE: A NEW GENERAL ANÆSTHETIC.[1]

BY TOM EASTHAM, M.B., CH.B. VICT.,
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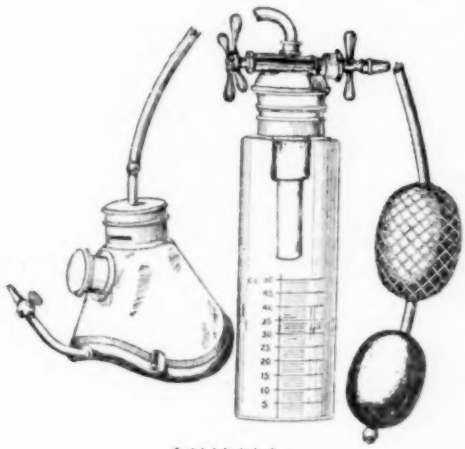
I WISH to bring before you a few observations and notes made about this new anæsthetic, especially as this is the first time that narcotile has been introduced to any society in this country or on the continent. For many years there has been a great demand for an anæsthetic which would act rapidly and effectually and at the same time produce no troublesome after-effects. To fulfil these requirements several anæsthetics of the ethyl chloride variety have been extensively used with varying degrees of success, but until the introduction of narcotile none of these bodies could be relied upon. Narcotile is stated to be a pure and definite ether obtained by the direct reaction of hydrochloric acid on mixed ethylic and methylic alcohols distilled together. The vapours are condensed under pressure and purified. It is a pure and constant chemical product and is not subject to decomposition when exposed to light. It is a transparent, colourless, mobile, and highly volatile liquid possessing an agreeable odour. Like ether it is inflammable and cannot be used in the neighbourhood of an artificial light. It is stored in tubes of a capacity of 50 cubic centimetres.

The apparatus for administering narcotile consists of a glass or metal cylinder fitted with a screw-cap mount and provided with inlet and outlet screw valves. The two-

FIG. 1.



Lobjois's inhaler.

spoked valve communicates with the inlet tube and receives the hand-bellows for pumping air through the bottle. The four-spoked valve, situated on the top of the apparatus, connects by means of an india-rubber tube the outlet with a face-piece. The face-piece is made of transparent celluloid and is fitted with an adjustable inlet valve and an automatic expiratory valve. For operations upon the mouth or throat Dr. Doyen's gag fitted with an inhaling tube is extremely useful. The anæsthetic can be given by the nose or by means of a metal tube.

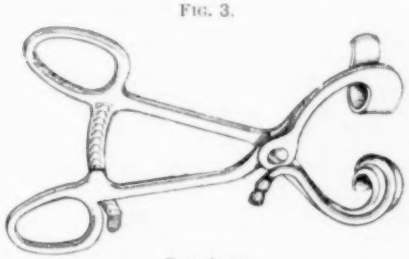
*The administration of narcotile.*—A space of two hours from the last meal is advisable, but not essential, before undergoing anæsthesia. In my series of cases vomiting has not occurred after a short anæsthesia, but when the patient has had narcotile for several minutes immediately after a meal vomiting has occurred in a few cases. Vomiting caused by this anæsthetic is not very dangerous because the patient is invariably conscious of what is taking place before the act of vomiting is completed. The patient's neck and waist must be free from all constricting clothing; the patient is placed in any position to suit the operator, preferably the dorsal posture. After widely opening the valves on the bottle the face-piece is held a little distance from the

FIG. 2.

Metal tube.

face so as to accustom the patient to breathe the anæsthetic without discomfort. The face-piece is then carefully fitted to the patient's face and the bellows are pumped at the end of every expiratory movement. The amount of air is regulated by means of an adjustable air valve; very little experience is necessary to tell how much air is required for each patient. After a few inspirations the air slot is usually

FIG. 3.



Doyen's gag.

completely closed, so that the patient only breathes air saturated with narcotile vapour. There appears to be little danger of asphyxia or cyanosis on account of the constant insufflation of the bellows, which provides the patient with a plentiful supply of air.

*The physiological action.*—The general effects of the anæsthesia produced by narcotile resemble greatly those of ether. Like ether it causes a peripheral vascular dilatation, which reveals itself in flushing, redness of the skin, and sweating. The salivary and bronchial secretions are not markedly increased. Respiration is at first quickened and deepened in character; it resembles markedly the noisy breathing of ether anæsthesia. Later the breathing is of the soft snoring or stertorous variety and finally becomes shallow. The heart's action is at first increased in force and rate; later the excitement subsides. Shock and collapse have never supervened. The muscles at first become rigid but soon are completely relaxed. If a limb be raised it falls like an inert mass. When the anæsthesia is complete there is no muscular rigidity. An extremely useful sign of commencing anæsthesia is the loss of the lines and ridges above the nose due to the relaxation of the occipito-frontalis muscle. By thus watching the facial ridges the eye need never be touched before consciousness is lost.

*The eye effects.*—At first the pupils dilate, soon become smaller, and often markedly contracted. The conjunctival and light reflexes disappear. If more narcotile be given the pupils dilate and the eyelids separate, showing that too much of the anæsthetic is being given.

The anæsthesia is rapid. The recovery is remarkable on account of its extreme rapidity and is usually unaccompanied by headache, giddiness, or other unpleasant symptoms. Soon after the patients "come to" they can express themselves clearly. If the operation is commenced before the patient is anæsthetised the patient is usually in a semi-conscious state and knows what is taking place—hears and feels external objects. If the narcotile is increased the patient becomes insensible to pain and yet sees and knows what is going on around him, but if the narcotile is further increased its anæsthetic properties are as efficacious as those of ether or chloroform.



[1] A paper read before the Bournemouth Medical Society on March 11th, 1903.

*Dangers.*—All anæsthetics are dangerous. Whatever the anæsthetic, once it is substituted for an element indispensable to life it must kill. Clinically I have never seen any unfavourable symptom. In the case of an overdose I feel sure the danger could be easily passed over by performing artificial respiration for a few moments, because narcotile, on account of its great volatility, is easily and rapidly eliminated. The symptoms of an overdose are separation of the eyelids with dilatation of the pupils and shallow breathing. The after-effects are headache and vomiting. These are very rare and pass off rapidly.

To complete the paper I will give some notes on a few cases to illustrate the details just described.

CASE 1.—A woman, aged 44 years, inhaled five cubic centimetres for the extraction of three teeth. When muscular relaxation was obtained the face-piece was removed; the operation lasted 45 seconds. The patient rapidly recovered and felt nothing. She said that she preferred narcotile to nitrous oxide.

CASE 2.—A woman, aged 23 years, inhaled five cubic centimetres. The face-piece and Doyen's gag were used; four teeth were extracted. The operation lasted 50 seconds; anæsthesia was perfect.

CASE 3.—A male infant, ten weeks old, inhaled 13 cubic centimetres for a circumcision; the operation lasted eight minutes. The anæsthesia was prolonged easily and was perfect; there were no reflexes. The child recovered consciousness three minutes after the withdrawing of the anæsthetic.

CASE 4.—A male infant, aged 18 months, inhaled 11 cubic centimetres for a circumcision; the operation lasted 15 minutes; anæsthesia was perfect, the breathing was good, and there were no reflexes. This patient had a meal immediately before the operation; after the recovery of consciousness the infant was sick twice. Five minutes after the operation the child was scratching his head, which caused him more annoyance than the after-effects of the anæsthetic.

CASE 5.—A woman, aged 44 years, inhaled seven cubic centimetres for the extraction of eight teeth. The operation lasted one minute ten seconds; anæsthesia was perfect.

CASE 6.—A woman, aged 54 years, inhaled ten cubic centimetres for the extraction of a molar; during the extraction the patient screamed; after coming round she said that she felt nothing. A week before a medical man unsuccessfully tried to give this patient nitrous oxide and was obliged to give chloroform for the extraction of one tooth.

CASE 7.—A girl, aged 12 years, inhaled seven cubic centimetres for the removal of adenoids by means of the forceps and the excision of both tonsils. Anæsthesia was perfect.

CASE 8.—A male infant, two weeks old, inhaled six cubic centimetres for an operation to open two abscesses and to scrape the tibia. The operation lasted ten minutes; there were no reflexes and anæsthesia was perfect.

CASE 9.—A woman, aged 20 years, inhaled nine cubic centimetres for the extraction of seven teeth. Anæsthesia was perfect. Five minutes after the operation the patient continued her daily work.

CASE 10.—A woman, aged 38 years, inhaled narcotile until anæsthetised and then ether from a Clover's inhaler for two minutes; 19 teeth were extracted; the anæsthesia was prolonged with chloroform by means of a Junker's apparatus. The patient came round very rapidly and was not sick; she felt very comfortable 15 minutes after the operation.

After the above case I tried narcotile alone for big dental operations with the following results.

CASE 11.—A woman, aged 27 years, inhaled 20 cubic centimetres for the extraction of 18 teeth. There were no reflexes; anæsthesia was prolonged for eight minutes by means of a metal tube. The patient came round three minutes after withdrawing the anæsthetic. She was not sick, felt nothing, and walked home half an hour after the operation.

CASE 12.—A woman, aged 25 years, inhaled 24 cubic centimetres for the extraction of 15 teeth, including some difficult roots. Anæsthesia was perfect; there were no reflexes. The patient spoke two minutes after the withdrawing of the anæsthetic.

CASE 13.—A woman, aged 39 years, inhaled 40 cubic centimetres for the extraction of 20 teeth. This patient was not prepared for an anæsthetic. Anæsthesia was perfect; there were no reflexes. She spoke within two minutes after the withdrawing of the anæsthetic.

CASE 14.—A boy, aged nine years, inhaled eight cubic centimetres for the removal of adenoids. Anæsthesia was perfect. (Narcotile is extremely useful for adenoids because it allows the operator to take as much time as he wishes; secondly, it causes no congestion; and, thirdly, the recovery is extremely rapid.)

CASE 15.—A boy, aged five years, inhaled ten cubic centimetres for an operation to expose and to scrape a tuberculous bone. The operation lasted three minutes; anæsthesia was perfect. The operation was performed at 11.30; at 12.45 this patient sat up in bed and ate a good dinner.

CASE 16.—A boy, aged five years, inhaled 25 cubic centimetres for the excision of a rib for empyema. This patient had influenza, pneumonia, and finally empyema. His condition was consequently unfavourable for any anæsthetic. Muscular relaxation was obtained and then the anæsthetic was increased until there were no reflexes. Breathing was excellent and forcible; the operation lasted 14 minutes; the recovery was rapid. There were no after-effects.

CASE 17.—A girl, aged 15 years, had 40 cubic centimetres for an operation to open an abscess and to remove a sequestrum; the duration was 20 minutes. Recovery was rapid; the patient was sick twice. She was able to remove herself from the operation table to the theatre ambulance.

CASE 18.—A woman, aged 46 years, inhaled 50 cubic centimetres for the removal of a scirrhus. This patient was admitted to the hospital drunk and was a habitual drinker. The operation lasted 20 minutes. There were no reflexes, the breathing was excellent, and there was no cyanosis, although the patient was red and florid. The patient was able to talk sensibly before the bandage was applied. There were no after-effects.

CASE 19.—A boy, aged six years, inhaled 16 cubic centimetres for a circumcision. This operation was performed before the Bournemouth Medical Society. The patient was anæsthetised in exactly 30 seconds. The operation lasted eight minutes. There were no reflexes. Anæsthesia was perfect. There were no after-effects.

CASE 20.—A youth, aged 18 years, inhaled 15 cubic centimetres for the amputation of a finger. Anæsthesia was perfect. There were no reflexes and no after-effects.

In my early cases I had several failures, but after discovering the defect I have not had a single case where the anæsthesia has not been extremely satisfactory. The cause of the few failures is the very low temperature which is produced by the rapid evaporation of the narcotile. To prevent this I keep the bottle in a basin of tepid water, or use a water chamber which I have devised to remedy this defect. For short anæsthesias it is quite sufficient to place the bottle in the waistcoat pocket; even this precaution prevents the narcotile from freezing.

I have now submitted the results of my experience with this new anæsthetic. It is an extremely useful anæsthetic and can be given with great safety to produce an anæsthesia sufficient for a big operation or for the extraction of a single tooth.

Bournemouth.

# THE TREATMENT OF EPILEPSY BY PSYCHICAL METHODS.

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IT is an undisputed fact that certain parts of the central nervous system are capable of exercising an important control over other parts by a process which is termed inhibition. It is likewise an accepted fact that physiological and pathological processes are often greatly modified by influences arising from the central nervous system. The important question of the present and the future is to investigate the best means for making use of this general knowledge, to bring it if possible into line with other scientific knowledge, and above all to endeavour to establish some rules and methods by which it can be employed to benefit or to cure disease. The subject is naturally a very difficult one to investigate and its difficulties are not made less for the medical profession by the wild speculations and expectations that are occasionally indulged in by those to whom the mysterious and unknown so strongly appeal.

Little useful advance can be expected until it becomes clearly recognised that however mysterious certain causes and effects appear to be at first sight they are undoubtedly based upon natural physiological laws, and it is towards the unravelling of the nature of these laws and their application to practical medicine that attention requires to be given. Generalities are known, it is particulars that are required now. At first we must be content with very simple facts and methods, but in carrying them out an endeavour must be made to practise them in accordance with physiological principles. In this paper I propose to consider how the treatment of epilepsy can be assisted by psychical methods, and in order to avoid as far as possible any confusion the subject will be divided into distinct parts so that the different aspects of the question may be more easily considered.

The necessity for basing psychical treatment as far as possible upon physiological principles has already been insisted upon and it will therefore be well to commence by considering some of the natural methods by which epileptic fits are known to be arrested or increased, apart from the influence of drugs. The knowledge that epileptic fits can occasionally be arrested by some effort of the patient dates from very early times. The classical instance is that of tying a cord round a limb and pulling it tight as soon as the aura is felt; this mode of procedure is apparently only supposed to be successful when the aura is felt to ascend a limb and when the cord can be tightened before it passes a certain spot. Fits have also been known to be arrested by the stimulation of other sensory nerves, as, for instance, by smelling ammonia or by sucking something of a very pungent taste. Inhalation of amyl nitrite also occasionally appears to be beneficial. In many cases the patient is able to control some of his fits by an effort of will. He apparently, as he expresses it, "pulls himself together" and prevents himself from "going off." It also appears to be a fact that patients, with the exception of very severe and confirmed cases, seldom have a fit when their attention is being closely held by any special occupation or other mental effort. No doubt there are many exceptions to this, but it is nevertheless a fact worth noting.

With regard to the factors which increase the liability to fits there can be no doubt that mental worry of any kind is a very potent one; time after time it is found that an increase in the number of fits accompanies mental worries and conversely a serene mind tends to diminish the number of attacks. Enough, then, has been said to show that there are certain possible psychical conditions which can tend to arrest, to diminish, or to increase the frequency of fits. Consideration as to how these influences act will be deferred for the present and another group of cases will now be considered in which arrest or diminished frequency has followed surgical operations apart from those in which any local cerebral condition was actually treated.

In an article entitled "The Topical Treatment of Focal and Jacksonian Epilepsy" Dr. J. William White[1] refers to the influence of operations upon epileptics in whom nothing abnormal was found or in whom the abnormality had no definite relation to the epilepsy. He refers to a paper which he had previously published in the *Annals of Surgery* entitled "The Supposed Curative Effect of Operations *per se*," in which a table of 172 cases of epilepsy is given showing that 147 of them had been subjected to operations of extraordinary variety and with the equally extraordinary result, according to the operators, of "improving" or "curing" a large percentage of cases. After making due allowance for a number of cases which had been reported before sufficient time had elapsed to test them and also for many other possible fallacies there still remained the fact that in 25 of the cases the improvement was still maintained after the lapse of 12 months, and Dr. White feels bound to conclude that something occurred as a result of the operative treatment which had at least a beneficial tendency in many cases, and on thinking the matter out he considered that there were four ways by which benefit might possibly have been obtained—viz., (1) the influence of the anæsthetic; (2) psychical influence or so-called mental impression; (3) relief of tension; and (4) reflex action or the "reaction of traumatism." Reasons are given for dismissing the first and third of these possibilities, but in considering the second Dr. White says: "The possible effect of psychic influence (through imagination and mental impression) is not so easily dismissed. There is no doubt that it is possible through influences acting upon the emotional or intellectual nature to affect the organic processes of secretion, nutrition, &c., and that it is therefore conceivable that through the same influences pathological changes may be arrested and reparative or curative action established." While admitting that the subject is vague he does not consider that it ought to be dismissed merely on that account. With regard to the fourth possibility—viz., that of reflex action—Dr. White refers to a paper by Verneuil in which it was long ago shown that any traumatism, however slight, sometimes excites in the entire economy a general perturbation and sometimes by a kind of selection of the weak point a sudden and violent aggravation of lesions that were only slight or that slumbered. Possibly, Dr. White suggests, this same excitement, usually prejudicial, may occasionally be curative.

Dr. James Jackson Putnam, writing in the same number of the same journal as Dr. White on the subject of Theoretical and Practical Considerations on the Treatment of Jacksonian Epilepsy, asks among other questions: Is the benefit obtained from cortical excision necessarily due to the removal either of a focus of disease or of a special "discharge focus"? After a careful consideration of the question of Jacksonian epilepsy Dr. Putnam is led to believe "that the arrest of epilepsy through surgical operation is an affair primarily of inhibition, and next of the establishment of a new habit, made possible by this temporary arrest of the morbid outbreaks." Epileptic attacks are also usually arrested during febrile conditions. Whatever the exact process is, the above is evidence that the fits may be inhibited from various more or less accidental causes, and anything, whether accidental or not, which arrests the fits is worth studying.

Next it will be well to mention some of the lines on which treatment has been attempted by means of hypnotic suggestion and in this respect I shall content myself with referring to the recent work of Boris Sidis[2] and his colleagues as this appears to be one of the best attempts which have been made at present to put the hypnotic treatment of this disease upon a rational basis. Boris Sidis considers that in the functional psychoses the fundamental lesion is a dissociation of groups of neurons whereby they become separated from the conscious mind although they still exist in the subconscious mind. He claims to prove the existence of lost functions in the subconscious states by reproducing them when the subject is under hypnotic influence and he further ingeniously uses this possibility of reproduction as an indication that the disease is still in the group of "functional psychoses" and has not passed into a further stage, which he designates as the "functional neuropathies," in which the lost function cannot be reproduced by hypnotism. Applying these theories to those forms of epilepsy which appear suitable, the object of treatment is to "re-associate" the "dissociated" neurons and in order to do this the patient is hypnotised and while in this state an endeavour is made to make him reproduce all the details of the fit and what went on during that time, the memories of which are, of course, completely lost when he is in his ordinary senses. An interesting case, which is too long to abstract here, will be found fully related in the work already referred to. The history of the case and nature of the attacks were certainly such as would lead to an unhesitating diagnosis of ordinary idiopathic epilepsy. There are, of course, all grades of epilepsy and some naturally give but little if any hope of ever being influenced by any psychical methods, but, on the other hand, there are many variations to be studied and in speaking of different forms in connexion with his case Boris Sidis thinks "that many a 'typical' epilepsy may on a closer study turn out to be a functional psychosis."

Having briefly reviewed some of the main points it will be seen that epilepsy can be influenced to a considerable extent by psychical conditions and the question now remains as to the best way in which these conditions may be turned to practical advantage. The elaborate studies of Boris Sidis cannot be done justice to here, but I must, however, acknowledge my indebtedness to his work for the suggestion of restoring the memory of incidents during the fit—a method of treatment which, as will be seen further on, I have endeavoured to elaborate in a somewhat different way from that suggested in the original. Hypnotism has not found much favour in this country and unless it can be

[1] Philadelphia Medical Journal, June 15th, 1901.

[2] Psycho-pathological Researches in Mental Dissociation.

shown to be of striking and undoubted benefit it does not seem that it will be likely to make much headway at present. It may also be objected that Boris Sidis supposes the existence of a subconscious level about which there is but little vague knowledge. This, however is, after all, but a term, for the main point consists in his having been able to obtain evidence of a function under hypnotism which could not be obtained in the waking stage.

Considering, then, the possibilities by which the fits may be naturally arrested, and adding to these the apparent benefits which have accrued from accidental interference and from hypnotic studies, it would appear that there is a fair field in which to practise psychical treatment and also that it is reasonable to hope to attain a fair measure of success. The methods which should be first employed are those based as far as possible upon the first group of causes which tend to arrest the fits—the group which I have spoken of as "physiological" in their action. There can, I think, be no doubt whatever that in following out the lines indicated by these methods we are following out the natural methods of arresting the attacks. The indications on which to base the treatment according to these lines are to attempt to inhibit the attacks either by a voluntary action of the will or by raising the nervous activity of some neighbouring centre. Attempts to inhibit the attacks voluntarily are of great value and should be strongly encouraged. Patients who have well-marked warnings often describe how on some occasions they pull themselves together the moment they feel queer and in this way apparently abort the attack. They find out this much for themselves in a rough-and-ready fashion but they seldom try to cultivate the habit to any extent or to elaborate it in any way. If the importance of the effort is pointed out to them they take a keen interest in it and make use of it systematically and with much greater success than before, and it must be remembered that every time an attack, or even part of an attack, is inhibited it is so much gain to the patient and he is undoubtedly in a stronger position to inhibit the next. This method of voluntary inhibition, although useful, is not, of course, to be depended upon entirely, and it needs artificial strengthening as far as possible. Such strengthening can be effected on the basis of the facts that tightening a cord round the arm will sometimes arrest a fit and that fits do not commonly occur when the attention is strongly occupied.

There is no certain explanation as to how the fits are arrested by tightening the cord. It is explained by inhibition and the process is generally supposed to be serviceable only in cases in which the aura ascends the limb. It is usually suggested that the inhibition is produced by impulses carried up the sensory nerve, such impulses being brought about by the compression of the nerves by the cord, but it seems doubtful if this explanation completely covers the question. The treatment originated from the idea that the aura really passed up the arm and that it could be blocked by this simple mechanism, and when the fits were found to be arrested it was natural that the explanation should fall in with this idea and when this idea was no longer tenable the explanation was somewhat shifted. That arrest takes place by the method that we call inhibition is, of course, a fact, but whether the inhibiting impulse always passes upwards along the nerves to the cerebral centres is not quite so certain. It would appear more likely that in many cases the inhibition has its starting point in the brain itself and is brought about by the concentration of the mind upon the action of pulling the cord tight. This is an important practical point because if this explanation is correct the cord method or some convenient modification of it should be found useful in cases other than those in which the aura begins in the arm, and I have recently met with a case in which I was able to demonstrate the utility of such a method in an unmistakeable fashion.

A man, aged 32 years, came to my out-patient department at the Middlesex Hospital with a history of ordinary epileptic fits since infancy. On an average he had about one a month. His attacks were preceded by aura of a sensation of fulness in the head and "indescribable feelings." While he was seated and attempting to describe these feelings he suddenly felt his warning and said, "I am going to have a fit now." I at once told him to try to control it and in order immediately to concentrate his attention upon something he was directed to clasp his arm as tightly as ever he could and this he did with all his might. For some seconds it appeared doubtful what the result would be. His face grew slightly turgid, partly, no doubt on account of the great mental and muscular effort that he was making. The feeling seemed to be passing off and he began to relax his effort, but as soon as he did this it returned immediately and it seemed as though he must succumb. He redoubled his efforts, however, and was rewarded by the attack passing off. It was most instructive to watch the struggle which finally ended in complete success for the patient. At one time it appeared as though he must give in, as his muscles seemed to be getting rigid, but there was apparently no loss of consciousness throughout. The aura in this instance was in no way connected with the limbs and the inhibition was evidently directly cerebral in origin brought about by a definite sustained effort. He stated that some years previously the fits used to appear to begin in the right side of the neck and that he could sometimes check them by pressing on the part, but that since the onset had become less definite he had not made any effort to arrest them. Pleased at the success of this effort he will endeavour to do so in the future now he knows that it is possible that it can be done.

Many other modifications for fixing the attention may be devised according to individual instances, but in case there should be some particular effect produced by stimulation of various nerves along which the aura appears to be projected the method devised may be directed towards this end in order to cover as far as possible the various possibilities.

The next method is one suggested by a perusal of Boris Sidis's work. As already explained the object of this worker was to bring back to the conscious memory the facts that occurred during unconsciousness, by which means, acting on the theory of "dissociation," he hoped to re-associate the neurons. To accomplish this he employed hypnotic methods which for various reasons I have not personally investigated. It struck me, however, after reading his interesting work that a beneficial result might possibly to some extent be obtained in favourable circumstances by voluntary efforts of memory on the part of the patient during that period of the fit which precedes complete loss of consciousness. If this method is in any way successful and the theory of dissociation is true, re-association in this voluntary manner would seem to be more of a physiological process than that produced by hypnotism, because in the voluntary method the re-association would take place from the higher to the lower centres, while in the hypnotic method it is sought to unite the "subconscious" to the conscious—i.e., the lower to the higher. To carry out this voluntary memory process the patient must be carefully instructed to remember every possible detail at the commencement of each fit and when the fit has passed he should carefully write out all the phenomena which he observed. It is interesting to see how the power of memory increases and extends further into the fit with practice and it most certainly seems to be a beneficial process. It may be that the apparent use of this memory exercise is due not to any re-association of neurons but to the intense effort of attention which it induces, but that is, of course, only speculation. It will be gathered from what has been said that the fits which are most likely to be benefited by psychical treatment are those in which there is a definite aura. Those who endeavour to carry out the methods certainly appear to be benefited and to be able to abort attacks which they would otherwise have had. One case I have had a special opportunity of making a careful study of through the kindness of Mr. C. R. C. Lyster and Dr. Howard Cane.

The patient, a boy, aged 16 years, was first noticed to have attacks of *petit mal* in 1897 when ten years old, but inquiry showed that he had had "sensations" before that time. At first he described his sensations as being of a pleasant nature and owned that he encouraged them, thus unfortunately strengthening the habit rather than breaking it. In April, 1899, he had an ordinary major attack and after then began to take bromides, which he has continued more or less since except for an interval in which they were left off owing to the depression which they produced. In August, 1899, after leaving off the bromides the fits became very violent, but were checked for nearly three months on resuming treatment. Since then, however, the fits have occurred (both major and minor) very frequently in spite of bromides and during the latter part of the summer of 1902 they were more severe than they had ever been, except perhaps in 1899 when the bromides were omitted. As the aura in this patient is usually of considerable duration it seemed a good case on which to try the effects of systematic inhibition. Nothing

in his treatment was otherwise altered, the efforts of inhibition were simply to be added. He had already discovered in 1900 that he had some power to fight against the attacks and occasionally to ward them off by pinching himself or by tightening up all his muscles, so that he was first of all instructed to carry out this "bracing up" the muscles, as he called it, systematically, and was directed to give his whole attention to the proceeding. It is, however, difficult to keep the attention fully occupied on a movement of this kind for long, as such a general movement soon tends to be performed mechanically. So, after having "braced himself up," he was instructed to take most minute notice of everything around him with a view of remembering it all afterwards. By this means his attention was further fixed and the method of employing the memory was also brought in at the same time. After an attack he writes out all that he can remember and the accuracy of it is checked by someone who is with him. The patient entered into the idea with great interest and commenced to carry it out at the beginning of February of this year. Fits of the ordinary major type occurred on Feb. 10th, 11th, 12th (two), 15th, 17th, and 22nd, in addition to numerous slight "feelings." He fought against all these and after many of them he was able to give a very accurate account of all the details between the onset of the aura and loss of consciousness. He also appeared to become able to exercise a very definite check upon the attacks and on Feb. 18th, after a considerable struggle, he came round without losing his senses. The notes of this attack are very instructive. He had all the symptoms of the beginning of a major fit and those who saw him hastened to loosen his collar, but his memory for the words and the actions of himself and of those around him was quite accurate and he recalled everything that had happened throughout the attack. Another somewhat similar attack occurred in which he felt that he must "go off," but which he succeeded in warding off by an effort, and after this attack also he remembered everything, only making a mistake as to the direction in which a horse and cart were passing. The patient aptly speaks of these recollections through the struggle as "remembering through a fit." I have taken these two attacks as examples, as there can be little doubt from his own knowledge and from those who were with him that they were cut short by his own efforts. Up to the time of writing no major fits have occurred at all since Feb. 22nd—i.e., for a period of five weeks—no such freedom having ever been obtained before except for the first few weeks after he resumed the bromides in 1899. He has had numerous slight "sensations" as usual, but for the most part these were quite momentary, and those which lasted longer have been inhibited as in the two instances mentioned above. While it is very gratifying to know that he has had such a long interval of freedom from the major attacks, too much must not, of course, be made of it, but there is undoubtedly evidence to show that he has been able to check attacks; and this after all is the main point, for if this can be accomplished the interval follows naturally. The well-marked aura in this case makes it specially favourable for attempting inhibition as the length of it would appear to show that the discharge takes an appreciable time to overcome the resistance of the paths around, during which time that resistance may be further increased.

The methods by which inhibition is carried out, as outlined in this paper, are, I am quite aware, somewhat crude, for it is a subject which must be developed slowly, but which it would seem has possibilities of a future before it. The different methods by which inhibition can best be accomplished in different cases will require careful study. The opportunity for inhibition is to be found during the aura and a method which may be successful for one kind of aura may be useless for another. If the exact nature of the warnings is carefully studied and the question of the possibilities of inhibiting each is carefully considered it seems probable that many fits may be checked which otherwise would certainly occur.

Here it may not be out of place to insist upon the necessity of diagnosing epilepsy as early as possible. It is so frequent to find that when the patients come for treatment they have already suffered from minor attacks for years. I have at present a patient under my care who had slight attacks, which she states were not even accompanied by loss of consciousness, over a period of six years, and then the major fit came and she sought treatment. Unfortunately, as in this case, the patients so often do not recognise the significance of their symptoms and only apply to be cured after the disease, or habit as it may be called, has become firmly established. It is, of course, not suggested for a moment that psychical treatment should in any sense take the place of the bromides or any other useful treatment, but if carried out carefully and intelligently it should prove a valuable adjunct and may lead to further advances in the future. The successful treatment of epilepsy depends upon a careful combination of many factors, the object of all of which is to check the fits; and the suggestion made here is that another useful method may be added if the power of inhibition on the part of the patient, which so often exists naturally, is further trained and strengthened. Last, and by no means least, the patient is able to take an intelligent part in the efforts for cure and feeling that he can actively help himself he no longer abandons himself to the despondent and apathetic attitude which is so apt to overtake those whose principal routine in life is to take bromides.

Queen Anne-street, W.

## A NEW METHOD OF TREATING SUPPURATING CATARRH OF THE MIDDLE EAR.

BY ALBERT A. GRAY, M.D. GLASG., F.R.S. EDIN.,
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A FEW years ago I published in THE LANCET[1] the results which I had obtained from using solutions of cocaine in anilin and spirit in order to produce anæsthesia of the tympanic membrane. The fact that the solvent anilin proved so useful in that case has led me to make further investigations in the same direction.

Anilin is a solvent for many substances which are insoluble in water and other media. Of these may be mentioned orthoform, iodine, iodoform, &c. Since anilin has, unfortunately, toxic properties its solutions must be used carefully, particularly as it has the further property of penetrating the human epidermis more effectually than any substance with which I am acquainted. I am indebted to Dr. David Watson for the knowledge of the fact that iodoform is soluble in anilin and it is to this solution that I wish to draw attention in this paper.

I found on examination that the strength of a saturated solution of iodoform in anilin is approximately 1 in 7; this is about the same strength as a saturated solution of iodoform in ether. The solution is of a pale brown colour and on evaporation (which is slow) the iodoform is deposited in large crystals. It keeps for a considerable time—a month or two—if stored in a glass-stoppered bottle and if impurities are carefully excluded. Ultimately it turns to a beautiful crimson colour due to the formation of an anilin dye and associated possibly with the gradual liberation of iodine. It is useless for surgical purposes when this red colour has developed.

The class of cases in which I have had most experience of the use of this solution is suppurating catarrh of the middle ear, and these I shall now describe.

CASE 1.—A girl, aged 11 years, had suffered from suppurating catarrh of both ears for five years. The usual treatment with boric acid powder, rectified spirit, peroxide of hydrogen, &c., had been carefully tried for more than a year and the discharge was as foul-smelling and profuse as before. I and one of my colleagues had both come to the conclusion that a mastoid operation should be performed, but having just prepared some of the iodoform anilin solution I decided to give it a trial. The result was in the highest degree satisfactory. The foul smell ceased after the first application and never returned; the discharge diminished rapidly and ceased altogether in the right ear at the end of two months; the left ear was dry a few weeks later. The hearing was considerably improved in both ears and the discharge has not returned since, that is, for a period of more than six months.

The method employed in this case was simple and being effective I have used it since. The ear was first syringed out and dried, the drying being done very carefully with pledgets of cotton-wool wrapped round the edge of a probe and used under the guidance of a speculum and forehead mirror in the

[1] THE LANCET, April 21st, 1900, p. 1125.

usual way. Five minims of the saturated solution were then measured out, soaked up on a small piece of cotton-wool, and applied with forceps to the secreting surface or pressed gently into the perforation. The cotton-wool was left in for five minutes and was then removed; the excess of the solution lying on the walls of the meatus may be removed by small cotton-wool swabs, but that lying in the tympanum or on the membrane should not be removed. The procedure is repeated twice or at most three times in the week and instillations of rectified spirit may be used on the intervening days.

CASE 2.—A man, aged 38 years, had suffered continuously for more than 30 years from suppurating catarrh in both ears. Treatment was begun by instillations of rectified spirit, but as little or no improvement resulted I had recourse to the use of the anilin iodoform solution used as described above. In exactly 20 days the right ear was dry and the hearing was much better. The left ear took much longer—87 days—to cure, but even that is by no means a long period of treatment for a condition that has lasted more than 30 years and has uniformly resisted the other methods of treatment.

The surgeon not uncommonly sees cases in which the discharge is very small in amount and according to the patient's statement occasionally absent for a few days or weeks together. On examination it is frequently found that the discharge, being very slight, has dried into a tough scab which, when removed, reveals a small granulation or ulcerated surface, usually in the upper portion of the field. Such a case is the following.

CASE 3.—A female patient who had suffered from marked deafness and occasional slight discharge from the left ear was anxious to be relieved of her trouble. The condition had lasted for more than 15 years. On examination it was found that the membrane had completely disappeared, as also had the malleus; the wall of the tympanum was, as far as was visible, covered over with a pearly glistening epithelium. In the posterior superior quadrant was seen a dirty, dark green scab which obstructed any possible view of the stapes. The whispered voice was not heard at all and the conversation voice was heard at a distance of one foot. The hearing power for the low notes was much affected, but that for the high notes very little. Bone conduction was increased; the fork was not heard at all by air conduction. The air douche and the catheter did not produce any perceptible improvement. On softening and removing the scab the conversation voice was heard at a distance of two and a half yards. Several attempts were made to stop the discharge by insufflation of boric acid, drops of alcohol, peroxide of hydrogen, and cauterising the granulation with chromic acid, &c., but they failed. Eighteen months later the patient came to see me again. By this time I had begun using the iodoform and anilin solution and she asked me to try it in her case. Her patience was rewarded, for in two months' time the discharge had ceased, there was no scab or any granulation, and the swelling of the mucous membrane in the neighbourhood of the stapes had subsided, with the result that she can now hear the conversation voice at a distance of five yards from that ear.

The following is an example of the efficacy of the anilin iodoform solution in a child.

CASE 4.—The patient, aged three years, was brought to me at the Bellahouston Dispensary on account of suppuration in the left ear. On examination there was found to be a perforation below and behind the handle of the malleus. The discharge had been of seven months' duration and was foul-smelling and profuse. For a period of three and a half months rectified spirit, boric acid powder, and sulphate of zinc solution had been consistently applied with but little benefit. Then, considering it a good test case, I applied anilin and iodoform, taking care, however, to use very little of the solution, and that only once a week, on account of the tender age of the subject. The improvement was immediate. The foul smell ceased at once and the discharge diminished in amount so rapidly that 34 days after the commencement of this treatment it had quite disappeared.

There are certain limitations to the use of the solution above referred to. The first of these is the limitation in regard to the dosage. Anilin, being toxic and possessed of remarkably penetrating power, must be used in such a way that not more than a certain amount can be absorbed. From an experience of several hundred applications on the skin, on mucous membranes, and hypodermically I have found out accurately that anything under four minims may be absorbed without producing any symptoms of poisoning in an adult. Above this amount cyanosis may occur, particularly in anæmic patients. Fortunately, more than four or five minims are never required in ear work, so that if the surgeon measures the dose he can use the preparation with absolute confidence.

The second objection is more likely to be experienced in practice. The skin of some individuals responds to the application in a peculiar way. Thus, in the writer's own case, if a few drops be rubbed on the back of the hand for a minute or so the part remains unaffected for a few hours; then an erythematous blush appears, accompanied by slight swelling and itchiness. This condition lasts for a day or two and gradually passes off without desquamation. Now, it can readily be understood that if the application be too frequently repeated the erythema described might develop into an eczematous condition. In one of the cases treated this did happen. The patient in question applied the solution too frequently but with most satisfactory results as far as the discharge from the ear was concerned; after a fortnight's use, however, an eczematous condition developed in the meatus. It is, therefore, on the whole, advisable that the surgeon should make the applications himself and limit the number of these to two and in susceptible cases to one per week.

To sum up: (1) the solution should be measured before use; (2) the drying out should be done with the same care as is required in the present methods of treatment; (3) granulations should be removed, though this is not quite so imperative as it is in other methods of treatment; (4) the applications should be made by the surgeon himself; and (5) the use of the solution is particularly indicated in those cases which do not do well when treated in the usual ways—that is, in foul-smelling and presumably tuberculous cases.

Glasgow.

## A CASE OF ACUTE TRIONAL POISONING REMARKS.

BY F. P. WIGHTWICK, M.D. DURH.,
AND
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A MARRIED woman, aged 29 years, who had recently had considerable family trouble and as a result had been unable to sleep well at night, went on March 18th into a druggist's shop and asked for "something to make her sleep" and was given a bottle of trional tabloids five grains in each, the directions on the bottle being "one to six as ordered, to be swallowed with a little water about half an hour before sleep is desired." Shortly before 1 P.M. on the same day she swallowed the contents of the bottle, 25 tabloids or 125 grains, at once. She then dressed to go out to lunch, drove about a mile in a cab, and sat down to this meal at about 1.45 P.M. She had only taken a little fish when she complained of feeling faint and giddy and was immediately violently sick and fell on the floor in an "unconscious condition." When I (F. P. W.) saw her about 3.30 P.M. she was lying on the floor breathing heavily and slowly, very pale, and the pulse was indistinguishable at the wrist. The heart beats were 90 per minute and the first sound was very feeble. The extremities were cold and no knee-jerk or conjunctival reflex could be obtained. The pupils were widely dilated, but in an hour's time when she was more conscious they were somewhat contracted. I had her carried to bed, the tight clothing released, and hot water bottles applied, and I gave one-fiftieth of a grain of strychnine hypodermically. On getting to bed she again vomited; there was no distinctive smell about the vomited material, which was sour and yellow and contained a little undigested food apparently fish. She occasionally stretched herself and frequently yawned. She was unable to answer questions, but apparently tried to put out the tongue after being frequently asked to do so. There was no smell with the breath. There was great difficulty in making a diagnosis, as at this time there was no history of poisoning and it seemed highly improbable that she would have taken any drug to make her sleep just before going to a luncheon party. I went to fetch a stomach syphon, &c., and asked Dr. H. D. Rolleston kindly to see the case with me. At about 4.30 P.M. she was

rather more capable of being roused and acknowledged having taken a drug but could not give the name. We therefore thoroughly washed out the stomach first with a weak solution of permanganate of potassium, as in the absence of any certain knowledge it seemed possible that morphia had been taken, and then with a solution of bicarbonate of sodium. After this, as she was rather collapsed the hypodermic injection of strychnine was repeated. She was also put on a mixture of magnesium sulphate until the bowels were well relieved. Her condition remained about the same all that night. She could just be roused and a little milk and bovril were given, but immediately afterwards she passed into a deep sleep. The next day a dark brown motion not suggesting blood was passed. On this and the following days (March 19th and 20th) the drowsiness, pallor, small pulse, and weak first sound of the heart continued; the temperature was 97·5° F. and she became giddy on attempting to stand or to walk. It was not until the 22nd, four complete days after taking the trional, that the knee-jerks returned and that she appeared natural, but even then she complained of feeling tired and weak. At no period did the urine contain albumin or show any abnormal colouration. It was not until the second day that she gave a history of buying the tabloids and when asked why she had taken such a large dose replied, "I had once before taken two or three of the tabloids and they had no effect and I thought they were quite harmless things."

*Remarks.*—Trional poisoning is uncommon and when it does occur it is usually due to the cumulative effect of numerous doses spread over a considerable time. Acute cases, in which a large quantity has been taken, either in one dose or in several doses within a few hours, are very rare. Collatz[1] recorded a case very much like the present one as regards the quantity taken at one dose—viz., 120 grains—and Berger[2] one in which severe symptoms were ascribed to 60 grains taken within 24 hours; in the last case, however, it is not improbable, as Goldmann[3] has suggested, that the patient, a medical man who had a considerable store of trional at his command and was a victim of the opium habit, had really taken more. So far as can be seen from a study of the reported cases there is a general resemblance between the symptoms due to the cumulative effect of trional taken for a considerable time and these due to acute poisoning.

The most important practical point about the case was the severe cardiac failure and the alarming change in the pulse which followed sitting the patient up. This and some other features of interest were noticed in Hart's[4] case where a woman who during two months had taken 30 15-grain doses of trional was seized with acute gastro-enteritis, followed by hæmatoporphyrinuria and albuminuria, dilatation of the heart, paræsthesia, loss of motor power, diminished reflexes, and later by double wrist- and foot-drop. Convalescence was tedious and lasted for more than a year. The nerves recovered their function in the same order as they were affected, the signs of vagal derangement passing off first. A marked effect on the heart, however, appears from an examination of the recorded cases of trional poisoning to be rather exceptional. Symptoms of ataxia or of peripheral neuritis have been described in other cases of chronic trional poisoning and seem to be especially prone to follow its cumulative effect. Vomiting and nausea are very occasionally seen after the medicinal use of trional and have been regarded as due to idiosyncrasy on the part of the patient. The emetic effect when taken in large doses may be useful in removing the poison, but from the absence of tabloids in the vomit of this case it appeared probable that they were driven on into the duodenum. The urine in this case did not show any darkening or manifest evidence of hæmatoporphyrinuria and thus resembles Collatz's acute case and differs from some chronic cases and from Berger's case. Neither did it suggest excessive urobilinuria as in Beyer's case[5] or in a case recorded by one of us.[6]

It may be pointed out that it so happened that the correct treatment for trional poisoning—viz., the administration of purgatives and bicarbonate of sodium, with which the stomach was washed out—was employed before there was reason to suspect that trional had been taken. What the lethal dose of trional is does not appear to be known, but it is very probable that under less favourable conditions, or if the patient had been energetically walked up and down to keep her awake, as was formerly the practice in morphia poisoning, death from cardiac failure might have resulted.

[1] Berliner Klinische Wochenschrift, 1893.
[2] Munchener Medicinische Wochenschrift, 1895.
[3] Ibid.
[4] American Journal of the Medical Sciences, vol. cxxi., April, 1901, p. 435.
[5] Deutsche Medicinische Wochenschrift, 1896.
[6] Rolleston: Transactions of the Clinical Society of London, vol. xxx., p. 125.

## TWO CASES OF TUBAL GESTATION WITH OPERATION; RECOVERY.[1]

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CASE 1.—A woman, aged 32 years, who was married some 12 or 13 years ago and had three healthy children, the youngest being now about 10 years old, became a widow and married again five months before she became a patient at the Exeter Dispensary. She had always been regular with clear intervals of three weeks up to seven weeks before her appearance at the dispensary when an interval of five weeks occurred. She then began to lose blood by the vagina and had been doing so for a fortnight when I saw her on Oct. 13th, 1902. She attributed her condition to a chill and was sent to bed where she stayed for eight or nine days with considerable improvement in her symptoms. I saw her on the 22nd and found that on the previous day she had passed two large clots and had a sharp "pricking" or cutting pain in the right inguinal region. On examination of the abdomen a swelling was to be felt just above the right side of the pubes. By vaginal exploration this was found to be a hard swelling apparently of the size of an egg, palpable bimanually and in the situation of the right broad ligament. The vaginal fornix on the right side was distended and a boggy fulness was to be felt in Douglas's pouch. Vaginal hæmorrhage was free and there was distinct anæmia. Dr. H. Davy now kindly gave me the benefit of his advice; he entirely concurred in my diagnosis of tubal gestation and an immediate operation was decided upon.

Dr. J. Mackeith giving chloroform and Dr. R. V. Solly assisting me, an incision through the right rectus abdominis was made. The peritoneum was immediately seen to be blood-stained, the right tube was ruptured and bleeding, and a pear-shaped mass was lying in the torn tube. This was shelled out and the base of the broad ligament was ligatured with an interlocking suture, the tube and the ovary being removed. About three ounces of blood clot were removed from Douglas's pouch and more fragments were flushed out. The wound was closed in the ordinary way and the patient made an uninterrupted recovery and is now perfectly well.

CASE 2.—The patient, a married woman, aged 33 years, was under the care of Dr. C. Scott Watson of Sidmouth, to whose careful observation and accurate diagnosis the successful issue of the case is due. She was seen by me on Jan. 24th, 1903. I ascertained that she had been married for 12 years but had never been pregnant. Her periods had been regular up to three months before, but those due since had been missed. She gave a history of an attack of ovaritis (? salpingitis) on the right side in 1895. About five weeks before I saw her she had begun to lose blood by the vagina and had pain in the right inguinal region; on one occasion she passed what she described as being like a "putrefying fowl's crop." After a week of bleeding she was seen by Dr. Watson for the first time. She had gone on bleeding slightly ever since with one sharp attack and the hæmorrhage had been sufficient to produce obvious anæmia. On abdominal examination a hardness just above the right side of the pubes was felt and on vaginal exploration the os uteri was found to be soft and directed to the right, the fundus being pushed to the left. A mass which could be felt bimanually to be part of that situated above the pubes occupied Douglas's pouch and the right broad ligament. I concurred entirely with Dr. Watson's diagnosis of tubal gestation and we decided to operate without delay.

Dr. G. A. Leon giving chloroform and Dr. Watson assisting me, an incision was made through the lower part of the

[1] A paper read before the South-Western Branch of the British Medical Association on April 1st, 1903.

right rectus. As in the previous case the peritoneum was stained by hæmorrhage. There were many adhesions and bleeding was going on pretty freely, obscuring the view—a difficulty referred to by Mr. J. W. Taylor in his Ingleby lectures in 1898.[2] With some difficulty the dilated tube was defined by the touch to be bent backwards towards Douglas's pouch. Large clamp forceps were placed on the ovarian artery and its uterine branch, which controlled the hæmorrhage and allowed the parts to be thoroughly inspected. The tube was unruptured and on the forceps being removed the bleeding was found to come from the open ostium of the tube. The tube and the ovary were isolated, ligatured, and removed. Some three or four ounces of clot were removed from Douglas's pouch, the pelvis was carefully sponged out, and the abdominal wound was closed in the usual way. The patient made an uninterrupted recovery.

These two cases have a very great resemblance to each other. In both of them vaginal hæmorrhage was sufficiently severe and continuous to produce distinct anæmia and it did not yield to treatment. Both cases had a fair amount of blood in the peritoneum; in the first case oozing was still going on, whilst in the second case this hæmorrhage was free at the time of the operation. A diagnosis of tubal gestation with hæmorrhage going on necessitates operative interference. In both of the cases recovery was rapid and the patients were soon able to resume their ordinary habits of life.

Exeter.

# Clinical Notes:

## MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

### A CASE OF ILEO-COLIC INTUSSUSCEPTION ASSOCIATED WITH TUBERCULOUS ULCERATION OF THE INTESTINES.

BY LLEWELLYN A. MORGAN, M.D. DURH., M.R.C.S. ENG.

THE following case is of interest for four reasons—firstly, it was ultra acute, death taking place in 39 hours; secondly, two important symptoms were absent—viz., severe pain and tenesmus; thirdly, tuberculous ulceration in an early stage was found post mortem; and fourthly, it was of the rare ileo-colic variety.

The clinical history was as follows. The patient was a well-nourished boy, aged one year and eight months. The previous history was good with the exception of an attack of ulcerative stomatitis four months previously. He was well on March 16th, 1903, but having eaten freely of some cake he was given a dose of castor oil as a precautionary measure by his mother. During the night an action of the bowels followed, accompanied by some mucus. On the 17th at 1 P.M. the child vomited and "went as pale as death," to use his mother's expression. I saw him at 2 P.M. He was listless and apparently free from pain nor had there been any. The abdomen was flaccid and no tumour was to be felt. There were no tenesmus and no blood per rectum. Colour was returning to the cheeks. The temperature was 98° F. and the pulse was 100. I saw the child again early on the 18th; he was obviously very ill and was dull and listless. I was shown some blood that he had passed at 4 A.M.; it was about an ounce in quantity and was free from fæces. He had vomited three or four times. There had been no marked pain and no straining. The abdomen was flaccid; no distinct tumour was to be felt but some dulness was present in the left flank. Per rectum I thought I detected high up a mass, but no "os" was to be made out; the finger returned coated with blood. The temperature was 100·4° and the pulse was 110. I diagnosed intussusception. Mr. R. W. Murray of this city saw the child with me later in the day and, agreeing in the diagnosis, opened the abdomen. An ileo-colic intussusception was found, the knob-like extremity being reduced with difficulty some four or five inches above the ileo-cæcal valve. The mesenteric glands were noticed to be enlarged. The child rallied for a time, but eventually died some 12 hours after the operation and 39 hours after the invagination.

A general post-mortem examination was refused but I was allowed to open the wound and removed the cæcum and some eight inches of ileum. At what had been the apex of the intussusceptum the coats of the bowel were much thickened and there was a marked congestion from this point to the valve. On opening the gut several commencing tuberculous ulcers were noted and at the spot which had been the apex of the intussusceptum the mucous coat was commencing to slough. The entire mucous membrane was much congested.

I should suggest that the ulceration present caused partial paresis of the bowel and that this portion being distended with flatus the part above was thrust into it by the peristalsis set up by the action of the purgative. I can find no mention of tuberculous ulceration and intussusception in the literature.

Liverpool.

[2] THE LANCET, May 28th (p. 1447) and June 4th (p. 1515) and 18th, 1898 (p. 1668).

### A CASE OF RUPTURE OF A DUODENAL ULCER SUBPHRENIC ABSCESS; DUODENAL FISTULA; LAPAROTOMY AND SUTURE OF THE DUODENUM.

BY ARTHUR H. BURGESS, F.R.C.S. ENG., M.B., M.SC. VICT.,

VISITING SURGEON TO THE MANCHESTER UNION HOSPITAL.

THE patient, a man, aged 34 years, while at dinner on June 24th, 1902, was seized with a sudden violent pain in the upper part of the abdomen, shortly followed by vomiting and collapse. He was carried home, where he remained in bed, feeling very ill all the time, and on July 17th was taken to the Manchester Union Hospital. On admission his general condition was extremely grave, the temperature being 104° F., and the pulse being 150, feeble, and flickering. The epigastric region was distinctly prominent and on palpation a deeply seated fluctuant swelling could be felt. A median laparotomy was performed in the epigastric area, the swelling was exposed, the rest of the peritoneal cavity being protected by gauze pads, and eight ounces of thick, creamy pus were withdrawn with an aspirator. A large drainage-tube was inserted, the purulent cavity washed out with sterilised salt solution, and the abdominal wound partly closed, drainage being carried out by a rubber tube surrounded with iodoform gauze. The general condition began rapidly to improve and the wound quickly closed with the exception of a small fistula which persisted at its upper end, discharging daily a few drops of a clear fluid which caused irritation of the surrounding skin, the fistula itself allowing of the passage of a fine probe for a distance of five inches. Accordingly, on Nov. 18th the abdomen was reopened and the fistulous track was traced in a backward direction along the under surface of the right lobe of the liver towards the duodenum which was buried in firm adhesions. On separating these and freeing the anterior surface of the first part of the duodenum a circular aperture half an inch in diameter was discovered, situated one inch to the right of the pylorus. This was closed by two superimposed layers of Lembert's sutures of fine silk, some difficulty being experienced from the great depth of the duodenum and necessitating the division of the right rectus muscle. A gauze drain was inserted leading to the line of suture of the duodenum and the rest of the incision was closed. A good recovery followed: the wound healed completely and has since remained so.

Manchester.

### A CASE OF CARBOLIC ACID POISONING DUE TO EXTERNAL APPLICATION.

BY J. A. RAUBENHEIMER, M.B., CH.B. EDIN.,

HOUSE SURGEON TO THE ROYAL INFIRMARY, LIVERPOOL.

THE patient, a child, aged six years, was admitted to the Royal Infirmary, Liverpool, on March 4th, 1903. She was suffering from genu valgum on both sides. Her general health was good except that she had adenoids. On the 20th at 11 o'clock in the forenoon she was prepared for operation by one of the nurses. The process of preparation was as

follows: (1) the parts were well scrubbed with warm water and soap; (2) all traces of soap and grease were removed by a thorough cleansing with methylated ether; and (3) the legs were wrapped up from the ankles to the groins with towels impregnated with carbolic acid 1 in 40 (none of the acid in any shape or form had ever been applied to the patient before). Being of a nervous disposition the child cried vigorously while these proceedings were taking place. At 12 o'clock it was noticed that she became quiet and drowsy. At 12.55 P.M. when conveyed to the theatre on an ambulance for operation she was still quiet, listless, and drowsy. This condition was thought at the time to be due either to exhaustion from crying or possibly to the presence of adenoids. At 1.5 P.M. the anæsthetist arrived and the administration of chloroform was commenced. On examining the patient she was found to be apparently fast asleep. She could not be made to speak and she took no notice of smart blows on the hand. She was found to be quite unconscious; the pupils were dilated, the pulse was feeble and rapid, and respiration was quiet. She was taken back to bed at once. Mr. F. T. Paul saw her immediately afterwards and found her cyanosed and practically pulseless. On consultation with Dr. J. H. Abram and Mr. Rushton Parker it was decided that the case was one of carbolic acid poisoning due to external application. The carbolised towels were at once removed, when the parts were found to be very pale. Stimulants—viz, a drachm of brandy by the mouth every half hour until consciousness had been regained, drinks of hot tea frequently, a subcutaneous injection of five minims of ether, hot bottles to the extremities, and a mustard plaster on the præcordia—were administered without delay. Some urine was drawn off but no carboluria was present. At 3.30 P.M. the patient began to recover and to regain control over the bladder and rectum which, before this, had been moved involuntarily. About 4 P.M. vomiting commenced but nothing peculiar could be detected in the vomit. The patient now began to improve rapidly. At 5 P.M. another specimen of urine was obtained which was found to be of a pale green colour, gradually becoming darker on exposure to air and light. On chemical examination it responded to the usual tests for carboluria. All subsequent samples during the next 24 hours gave the same results, thus verifying the diagnosis. The patient recovered completely.

Liverpool.

# A Mirror
OF
# HOSPITAL PRACTICE,
## BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. v., Proœmium.

## WEST LONDON HOSPITAL.

### THREE CASES OF PERFORATING PEPTIC ULCER WITH ATYPICAL SYMPTOMS.

(Under the care of Dr. SEYMOUR TAYLOR, Dr. A. E. RUSSELL, Dr. DONALD W. C. HOOD, and Mr. L. BIDWELL.)

FOR the notes of the cases we are indebted to Mr. Hugh Wansey Bayly, late house physician.

CASE 1.—The patient, a female, aged 48 years, married, was admitted to the West London Hospital on Nov. 21st, 1902, under the care of Dr. Seymour Taylor. She gave a history of occasional indigestion for some years but no previous hæmatemesis. On admission the patient stated that she had had a severe hæmatemesis on Nov. 15th, since when she had been fed by the rectum but had nevertheless had a severe hæmorrhage from the bowel on the 19th. She was very anæmic and had evidently lost a large quantity of blood. The pulse was of fair strength and of normal rate. She complained of epigastric tenderness, especially at a point just to the right of the middle line. Gastric ulcer was diagnosed and the patient was fed by nutrient enemata but was allowed one ounce of water by the mouth every four hours. She was apparently progressing favourably till 7 A.M. on the 25th when she felt faint but experienced no pain. At 11 A.M. she was collapsed and the pulse at the wrist was imperceptible, the temperature was 97·6° F., the femoral pulse was 84, and the respirations were 20. She was given 30 minims of tincture of opium and one drachm of adrenalin. Two hours later she was evidently weaker and as a fatal syncope was feared she was given a rectal injection of half a pint of normal saline solution containing one ounce of brandy, and the foot of the bed was raised. The injection was returned with a large melænic motion. There was no vomiting or diarrhœa or abdominal rigidity or pain, and the condition was thought to be one of hæmorrhage from a duodenal ulcer. At 2 P.M. she was evidently sinking and was given a hypodermic injection of strychnine and half an ounce of brandy by the bowel; she was intravenously infused with two pints of normal saline solution and was ordered 20 minims of liquor opii sedativus and half a drachm of adrenalin every four hours. Great improvement followed the infusion, but the improvement was only temporary and she gradually sank and died at 7.30 P.M., 12 hours after the onset of the acute symptoms.

*Necropsy.*—At the necropsy a large perforation of the size of half-a-crown was found on the posterior wall of the cardiac end of the stomach, opening into the lesser sac of the peritoneum, which was filled with blood. The foramen of Winslow had become occluded and there was no blood or gas in the general peritoneal cavity. There was no peritonitis. The ulcer was apparently of an acute necrotic nature, as there was no thickening of the edges. There was practically no blood in the stomach or intestines.

CASE 2.—The patient, a male, aged 54 years, was admitted to the West London Hospital on Nov. 22nd, 1902, under the care of Dr. A. E. Russell. On Nov. 15th Dr. G. P. Shuter met the patient outside his consulting-room, *running* to ask his advice as to a severe pain in the abdomen with which he had been suddenly seized. He was supporting his abdomen with his hands as he ran. Dr. Shuter ordered him to return at once to his house and to go to bed and within a very short time visited him and found him in the following condition. The patient had a good colour and did not present the abdominal facies; there was no collapse, the pulse being 60 and of good strength, and the temperature and respirations were normal. There was no history of previous indigestion or abdominal trouble of any kind. The bowels had been opened that morning and he passed urine naturally and without pain. The tongue was moist and clean. There had been no vomiting. He complained of intense pain in the right hypochondrium, close under the ribs, which was worse on taking a deep breath. On examining the abdomen it was found to be distended, globular, and of stony hardness, but the legs were not drawn up and there was no tenderness. The abdomen was resonant all over, but there was no loss of liver dulness. There were no physical signs in the chest. The slow pulse and absence of collapse or tenderness seemed to put perforating duodenal ulcer, which was first thought of, out of the question, and as hot fomentations to the abdomen caused considerable relief hepatic colic was suspected. The patient remained in this condition for two days with the bowels constipated and with a pulse varying from 65 to 80. On the 17th a simple soap-and-water enema was given, which resulted in a copious normal solid motion, followed about an hour afterwards by a large clay-coloured solid motion. From this time diarrhœa set in and the abdomen became quite soft and readily palpable and the pain ceased. The patient felt very weak and the temperature fell to 96°. On the 20th the abdomen became more distended, the tongue was furred, and the diarrhœa was very frequent and offensive. No improvement occurring during the next two days the patient was taken to the West London Hospital after having been ill for seven days. No opium was given at any time for fear of masking the symptoms. On admission the patient looked extremely ill; he had a dry coated tongue, his pulse was 88 and of fair strength, his temperature was normal, and his respirations were 28. He was frequently passing liquid offensive greenish yellow motions into the bed. On examination the abdomen was found to be distended and resonant and there was a distinct sense of increased resistance on bimanual palpation of the right loin. There was œdema over the lower part of the chest, extending a little above the angle of the scapula behind, but not extending further forward than the anterior axillary line. On percussion a dull note was obtained posteriorly over the base of the right lung below the angle of the scapula with diminished breath sounds. The liver dulness and the cardiac dulness were

normal. There was a very slight tenderness on deep palpation of the right hypochondrium and a small amount of free fluid in the abdominal cavity was suspected. There were no cough and no vomiting. A provisional diagnosis of perforating duodenal ulcer was made by Dr. Russell, but after consultation with Mr. McAdam Eccles the symptoms were not considered sufficiently definite to justify an abdominal operation in the patient's weak condition. Among the many diagnoses that were suggested by gentlemen who examined the patient were subphrenic abscess, empyema, peritoneal abscess, empyema of the gall-bladder, acute pancreatitis, liver abscess, and appendicitis. On the following morning the abdomen was distended, the pulse was 96 and rather weaker, the respirations were 32, the temperature was normal, and the patient was passing liquid, very offensive motions every few minutes. A starch and opium enema was administered and digitalis was given by the mouth and strychnine hypodermically. The enema was returned but was repeated half an hour afterwards and this was not returned for an hour. On the following day there was still no abdominal pain or tenderness or diminution of the liver dulness. There was an extension upwards of the dulness over the right base behind, and on exploring below the angle of the scapula a drachm of sero-purulent fluid was obtained which was found to contain pus cells and some diplococci. The œdema extended as far forward as the nipple line and on to the abdominal wall in the right hypochondrium. In the evening the general condition was unchanged. The temperature was 97·2°, the pulse was 80, and the respirations were 40. From this time the patient gradually sank and died on the following morning.

*Necropsy.*—On opening the abdomen the intestines were found to be greatly matted together and scattered over them and also amongst the coils were numerous collections of thick green pus. A large ulcer was found just below the pyloric sphincter and involving the sphincter itself, and a perforation of the size of a threepenny-bit was seen immediately beyond the sphincter from which the contents of the stomach were oozing. The duodenum was dark in colour and the mucous membrane was injected. There was no sign of malignancy about the ulcer or the surrounding tissue. There was a large collection of pus in the right lumbar and right hypochondriac regions; also between the liver and the lower surface of the diaphragm there was another large collection of pus pressing on the liver but not damaging the liver tissue. There was apparently no connexion between the abdominal and pleural cavities but there was some free fluid in the right pleural cavity and there was also a large collection of thick pus between the middle and lower lobes of the right lung. A small patch of tubercle was found at the apex of the left lung.

CASE 3.—A single woman, aged 24 years, was admitted to the West London Hospital on Nov. 23rd, 1902, under the care of Dr. Donald Hood. On admission the patient gave a history of indigestion on and off for eight years, during which period she had occasionally vomited after food; she had a slight hæmatemesis in August, 1902. She had always been troubled with constipation. She was a healthy-looking, well-nourished young woman, of a good colour, and with no symptoms of anæmia. She stated that her present attack began a week before admission with pain in the epigastrium and vomiting and that again on Nov. 21st she had a severe, sudden, sharp abdominal pain, followed by a slight hæmatemesis. Since then her motions had been dark-coloured. On examination of the abdomen nothing abnormal was found with the exception of diffuse epigastric tenderness; there was a particularly tender spot opposite the eighth costal cartilage on the left side. The pulse was 120, the respirations were 32, and the temperature was 99·4° F. The patient was placed on rectal feeding and appeared to be progressing satisfactorily till the middle of the second day after admission when she passed a large fluid melænic motion. A drachm of adrenalin and 20 minims of tincture of opium were given by the mouth and as the melæna continued four-hourly doses of half a drachm of adrenalin and 20 minims of liquor opii sedativus were ordered. There was no vomiting or hæmatemesis. The pulse and temperature remained practically as on admission but the respirations had fallen to 22. At 5 A.M. on the following morning she was seized with a sudden sharp pain in the right hypochondrium whilst using the bed pan and when Mr. Bayly saw her at 5.30 A.M. she looked ill and had a pinched and anxious expression and her appearance had altogether changed from the healthy one of the day before. Her pulse was unaltered—viz., 120—but her temperature had risen to 100·2°. The patient felt very ill and complained of great thirst but there was no vomiting. The abdomen was not distended but there was distinct rigidity of the abdominal wall above the level of the umbilicus and although the abdomen moved slightly with respiration, the movement was certainly less than normal. There was no loss of liver dulness. It was thought that the condition was probably one of perforation of a duodenal ulcer, and as Mr. Bayly was unable to communicate with Dr. Hood he sent directly to Mr. L. Bidwell, who came at once and considering that surgical interference was indicated began the operation at 7 A.M., just two hours after the perforation had presumably occurred.

An incision from five to six inches long was made over the right rectus, extending down below the umbilicus, and the muscular fibres were separated and the peritoneum was opened. The duodenum was searched for a perforation, the lesser omental sac being opened, but beyond a little redness of the peritoneum nothing abnormal was discovered. The ulcer was discovered on the anterior surface of the stomach near the lesser curvature. It was extremely hard and thickened so as almost to give the feel of a malignant growth. The contraction produced by the ulcer had caused an hour glass contraction of the stomach, the narrowed portion only just admitting the index finger on invagination of the stomach walls. The perforation was situated in the middle of the ulcer and would only just admit a probe-pointed director. There had been apparently no extravasation of gastric contents and there was only some slight redness of the surrounding peritoneum. The perforation was closed by silk sutures taking up sound stomach wall on each side and so invaginating the ulcer. The transverse mesocolon was opened with the object of performing a posterior gastro-jejunostomy, which was, however, found to be impracticable owing to the position of the incision to the right of the linea alba, and the condition of the patient did not warrant a second incision and consequent protracted operation. A gauze drain was left in, leading to the site of the ulcer, and the wound in the parietes was sutured in three layers. The patient's condition five hours after the operation was extremely bad. She could retain no nutriment by the rectum and was continually calling for the bed-pan and passing very dark liquid motions. The pulse was 144 and small. A pint of normal saline solution was infused into the axillæ every four hours. On the following day she retained the nutrient enemata somewhat better and at this stage her temperature was 99°, but towards evening it rose and at 6 P.M. and 10 P.M. it was 102°, with a pulse of 132 and 100 respectively. She died at 2 A.M.

*Necropsy.*—The peritoneum in the immediate neighbourhood of the perforation was injected, but beyond this there was no sign of peritonitis. On opening the stomach the extreme hour glass condition was very apparent, the stomach wall at the site of the constriction being greatly thickened so that this false pylorus was completely surrounded by a cicatricial ring. There were no signs of recent hæmorrhage and this was the only ulcer present.

*Remarks by* Mr. BAYLY.—Case 1 shows that gastric perforation can occur without the production of any pain or abdominal symptoms of any kind. The one melænic motion following the enema of normal saline solution was the only direct evidence of a hæmorrhage into the alimentary tract. Case 2 is interesting as showing (1) that in a condition of acute septic peritonitis there may be practically a normal pulse and temperature and also that vomiting and abdominal tenderness are not necessary symptoms of this condition; (2) that collapse does not always accompany perforation, for perforation in all probability must have occurred nine days before death and immediately before Dr. Shuter met the patient *running* to consult him; and (3) that a peptic ulcer on the point of perforating may have caused no digestive or abdominal symptoms whatever. With regard to Case 3, here also collapse did not follow perforation, for the temperature half an hour after perforation had risen to 100·2°. The change in the aspect of the patient was the most valuable indication of perforation. The presence of melæna without hæmatemesis or vomiting was evidently due to the hæmorrhage occurring on the pyloric side of the constriction produced by the ulcer. In none of the three cases was there obliteration of the liver dulness. My best thanks are due to Dr. Hood, to Dr. Seymour Taylor, to Dr. Russell, and to Mr. Bidwell for their

courtesy in permitting me to publish these cases, and to Dr. Shuter for the history of Case 2 before admission to hospital.

## MEXBOROUGH COTTAGE HOSPITAL.

### A CASE OF FRACTURED PATELLA, WITH HINTS ON THE POST-OPERATIVE TREATMENT.

(Under the care of Mr. BERTRAM CROSSFIELD STEVENS.)

ON Feb. 8th Mr. B. Crossfield Stevens was asked to see a man who had fractured his patella. On interrogation the patient, who was a stout, healthy man in his prime, said that whilst leading a pony out of the "pit bottom" the animal stepped on to his flexed knee with its forefoot and broke his knee-cap. The patient managed to limp out of the pit and medical aid was requisitioned. At first there was a separation of about four inches, but on arrival at the hospital, when Mr. Stevens saw him, the separation was only about one inch; the fracture was transverse and the joint was moderately swollen. After the advisability of having the bone wired was explained the patient consented. After 24 hours' rest operation was performed. A four-inch longitudinal incision was made down to the bone; this was followed by a gush of synovial fluid and serum. The broken edges of the patella were well scraped and cleared of soft tissue by a sharp spoon. Two stout silver wires were then inserted through holes bored at each end of the fragments—care being taken not to involve the posterior articular surface of the patella—and the fragments were brought into close apposition. The soft tissues and tendinous expansion of the quadriceps extensor were stitched over the wires and the wound was closed. The limb was placed on a back-splint and foot-piece. On the eighth day the skin stitches were removed, the splint was taken off and left off, and passive movements were begun. At the end of the second week the patient was wheeling himself about in a chair with both legs hanging down. At the end of the third week he was walking about with two crutches and was sent home.

On March 20th, or five and a half weeks after the accident, the patient went to see Mr. Stevens, having walked one and a quarter miles from the hospital where he had been to report himself. He looked the picture of content and gratitude. He walked up and down a steep flight of stairs with ease and only complained of a little stiffness in the tendons of the ham. He could flex the knee perfectly, but Mr. Stevens advised him not to flex it beyond a right angle for a little while. He had only an ordinary walking-stick and stated that he was going to walk home, a distance of quite two miles. The patella seemed to be quite firm and nothing could be felt of the wires.

*Remarks by* Mr. STEVENS.—Cases of fracture of the patella in which the after-condition of the patient is not all that could be desired are still seen and read about. The chief trouble undoubtedly is the stiffness of the knee-joint consequent on the too tardy application of passive movements. Bearing this in mind I resolved that, *cæteris paribus*, this should not be my misfortune in any case of which I had the care. The case reported above is intended to emphasise my statement that by double wiring and early passive and active movements a successful issue can be attained in double-quick time. Two good wires through the knee-cap can be relied on with much more certainty than one—firstly, in performing passive movements early, and, secondly, in leaving the patella to itself to unite firmly at leisure. Plaster-of-Paris should not be used when the splint is taken off.

ROYAL UNITED HOSPITAL, BATH.—A special meeting of the subscribers to this institution was held on April 2nd, when the question of the visiting of patients in the city parishes of Bath by the resident medical staff was discussed. A proposal made at the annual meeting to abolish the practice met with considerable opposition. Eventually it was unanimously resolved to relieve the resident staff of the hospital from the duty and to appoint an additional salaried medical officer specially for the purpose. A number of subscriptions to meet the additional cost was promised.

# Medical Societies.

## PATHOLOGICAL SOCIETY OF LONDON.

*The Relation of Carcinoma to Nerve Distribution or Trophic Areas.—Suppurative Meningitis due to Streptothrix Infection.—Angioma of the Brain.—The Nature of the Nuclear Vacuolation in Fat Cells.—Rupture of Aortic Aneurysm into the Pulmonary Artery.—Rupture of Aortic Aneurysm into the Superior Vena Cava.—Rupture of Thoracic Aneurysm into the Stomach.—Adenoma of the Liver.—Congenital Absence of the Gall-bladder.*

A MEETING of this society was held on April 7th, Sir JOHN BURDON SANDERSON, F.R.S., the President, being in the chair.

Mr. G. L. CHEATLE, C.B., read a paper on the Relation of Carcinoma to Nerve Distribution. He said that there were two main features to which he wished to draw attention. Firstly there were a large proportion of cases of carcinoma which showed a marked relationship between the spread of the primary focus and the distribution of nerves and trophic areas. Arising out of this observation was the practical issue that the extent of these areas should be taken into consideration in marking out incisions when removal of cancer was contemplated. The importance now attached to the lymphatic pathways of distribution was not detracted from by the addition of another factor. Secondly, there was some reason to think that the incidence of cancer within a nerve area was not a fortuitous circumstance but that it might be due to direct or indirect nervous influence over that area. A series of lantern slides of rodent ulcers and carcinoma, affecting, and more or less limited to, the area of supply of certain nerves, was then shown. In the tongue when cancer began on one side of that organ its growth was often remarkably limited by the middle line, and the epithelium at the tip of the tongue on the side of the disease often remained free from infiltration. With regard to the second point—viz., that there was some reason for inferring that carcinoma might originate in a nerve area as the result of the nerve influence over that area—Mr. Cheatle instanced cases in which the fifth nerve areas, either singly or combined, were the seats of multiple discrete rodent ulcers. He considered that he had shown that there was reason to believe that the genesis and spread of cancer might be intimately connected with the nerve influences which presided over the areas affected.—Mr. W. MCADAM ECCLES referred to a case reported by Mr. A. A. Bowlby in which a rodent ulcer affected the area of distribution of the posterior roots of the spinal nerves. He thought that there was considerable importance in the suggestions made by Mr. Cheatle but he considered that more importance was to be attached to the association with the locality of congenital fissures.

Dr. C. E. BEEVOR and Dr. E. FARQUHAR BUZZARD described a case of Basal Meningitis due to Streptothrix Infection. A woman, aged 37 years, three weeks before admission to hospital had severe attacks of vomiting followed next day by headache and pain in the back of the neck. The pain gradually increased and the neck became rigid. Her condition was as follows. The head and neck were held stiffly, but there was no definite retraction of the head. There was no optic neuritis; the vision was $\frac{6}{9}$. There was ptosis of the left eyelid with narrowing of the palpebral fissure and limitation of the movements of the left eye. Movement of the right eye outwards was defective, with coarse nystagmoid conjugate movements in all directions and especially to the right. There was diplopia in looking up, down, or to the left. The pupils were equal and reacted to light and accommodation, but the left pupil again dilated rapidly. There was no paralysis of other cranial nerves. There was no paralysis of the limbs, but considerable tremor in extending the left upper limb. There were no wasting and no rigidity. There was no anæsthesia. The deep reflexes were all well marked and the plantar reflexes were flexor in type. The sphincters were not affected. The temperature was irregular and ranged from 98·4° to 103·4° F., rising to 105° at the end. Three days after admission she became worse and passed into a state of stupor with retraction of the head and arching of the spine. She died, having been

comatose for the last few days of life. There had been on a few occasions twitchings of the limbs, but she did not have an epileptic fit while in the hospital. At the necropsy, made four hours after death, there was found a suppurative meningitis affecting the meninges covering the left posterior half of the base of the brain. This appeared to be secondary to a carious condition of the body of the sphenoid and of the basilar part of the occiput. As far as could be ascertained the infection did not arise from the neighbourhood of the middle ear, but in all probability from the posterior nasal cavities. Examination of the pus revealed the presence of an abundant streptothricial growth in the form of mycelial tufts and scattered threads, some of which stained homogeneously by Gram's method and some of which showed a condition of segmentation or sporulation. The same organism was found in sections made through small abscesses in the superficial parts of the cerebellum and temporal lobe. It stained well by Gram's method and by methylene blue but was not acid-fast. All attempts to grow it on artificial media were unsuccessful both by aerobic and anaerobic incubation. Histological examination of the bulb and cord showed intense round-celled infiltration of the vessels of the former and a condition of diffuse degeneration of the white matter of both by the Marchi method, extending as far as the sacral region. The lack of cultural characteristics prohibited a definite opinion being formed as to what particular species of streptothrix the fungus in this case belonged to.

Dr. J. H. DRYSDALE showed a specimen of Angioma of the Brain from a man, aged 17 years, who had been in his usual health till the time when he was suddenly seized with abdominal pain and shortly afterwards became drowsy. When examined it was found that he had some weakness of the left side of the face and of the left arm and leg. There was no optic neuritis. The coma deepened and the patient died six days after the first onset of symptoms. The patient had had a fall on the head four years previously. At the necropsy the surface of the brain appeared to be exceedingly congested but this condition was much more marked on the right side than on the left and particularly over the superior parietal and ascending parietal convolutions externally and on the præcuneus and paracentral convolutions on the median surface. At this spot the vessels which were regarded as veins were enormously dilated and tortuous, forming an almost unbroken area of spongy blood-containing tissue. On making a transverse section of the hemisphere at this point it was found that the process penetrated in wedge-shaped form deeply into the white matter and terminated abruptly in a single round dilatation as large as a cherry which occupied the situation of the lenticular nucleus. The middle cerebral artery on that side was of normal size at its origin but on entering the Sylvian fissure it became greatly and irregularly dilated and acted as a feeder of the mass of large vessels seen on the vertex. The arteries of the circle of Willis were normal. The specimen was one of racemose aneurysm or angioma arteriale racemosum and Dr. Drysdale suggested that the condition was directly comparable to the cirsoid aneurysm seen externally on the scalp and might result from an injury. In three of eight of the recorded cases the symptoms manifested themselves after a severe injury.

Mr. S. G. SHATTOCK read a paper on the Nature of the Nuclear Vacuolation in Fat Cells. He said that this vacuolation of the nucleus was first drawn attention to by Sir Victor Horsley in 1885 and that it had been again referred to by Professor Rubert Boyce and Mr. Cecil Beadles in this country. It was in the fat from myxœdematous patients that the phenomenon was particularly common, but it was met with in normal fat and the fat of lipomata. Mr. Shattock's own observations had been made upon fat in the mid-line of the tongues of two negroes and his object had been to see how far the lyssa might be represented in the lower races of man, but the source of the fat was immaterial. Seeing that the vacuolation was of such common occurrence in adipose tissue the possibility that presented itself was that the space contained fat like the body of the cell. This surmise proved correct. The best staining method was Sudan III. preceded or followed by Ehrlich's hæmatoxylin. This stain was preferable to osmic acid since the fat was stained of a positive red colour and nothing except the fat was stained. If the vacuolated nucleus was viewed on the flat it was hardly possible to decide whether the red colouration of the vacuole was intrinsic or was the colour of the fatty contents of the cell appearing through the intra-nuclear space. When viewed from the side the most noticeable feature was the deformity produced by the vacuole which projected solely from the outer aspect of the cell. In optical section the droplet of fat in the nucleus, coloured red, like the fat in the rest of the cell, was bounded on the deep side by a thin line of compressed chromatin; whilst around it the chromatin formed a ring or collar. These observations made it clear that in the process of fatty infiltration of the cells in the production of adipose tissue, oil was stored not only in the body of the cell but not infrequently in the nucleus as well. There was no sign of any nuclear disintegration; the chromatic network was merely displaced and the droplet was almost invariably single. How far mitosis would be affected could only be guessed at; should it be called for the oil would probably be first removed.

Dr. J. F. H. BROADBENT showed a specimen of Rupture of Aneurysm of the Aorta into the Pulmonary Artery. In the ascending aorta just above the left anterior cusp of the aortic valve and immediately to the right of the orifice of the left coronary artery, was a circular aperture three-quarters of an inch in diameter, constituting the mouth of a small aneurysmal sac interposed between the aorta and pulmonary artery. In the anterior wall of this sac, which was formed by the pulmonary artery, was a similar rounded opening leading to the interior of the vessel, situated at the level of the posterior cusp of the pulmonary valve which had practically disappeared. The margins of both apertures were rounded and cicatrised. During life there were a marked thrill over the second to the fifth left intercostal spaces, most intense at the third, and a loud continuous roaring murmur with maximum intensity over the third left intercostal space. Dr. Broadbent also showed a specimen of a small aneurysm of the aorta bulging into the lumen of the pulmonary artery and obliterating one of the cusps of the pulmonary valve.

Dr. R. T. HEWLETT showed a specimen of Aneurysm of the Aortic Arch that had opened into the superior vena cava. The patient, a seaman, aged 46 years, was admitted into the Seamen's Hospital, Greenwich, suffering from dyspnœa and swelling of the upper half of the body, a condition which developed only six days previously. On examination there were marked œdema of the chest and back, face, arms, and hands, enlargement of the heart, and a systolic murmur in the aortic area. The pupils and radial pulses were equal, the voice was unaffected, and the urine was free from albumin. Eight days after admission the patient complained of sudden pain in the head with increased dyspnœa and fell back pulseless and apparently dead. He rallied but did not regain consciousness except for a quarter of an hour, after which he suddenly died 20 hours after the onset of the seizure. At the necropsy a large sacculated aneurysm was found involving the ascending and transverse portions of the aortic arch and having an opening communicating with the superior vena cava. Dr. Hewlett remarked upon the rarity of this occurrence and surmised that the sequence of events was as follows: (1) slow increase in the size of the aneurysm with pressure upon the superior vena cava but insufficient to cause symptoms; (2) in consequence of the pressure inflammatory changes in the wall of the superior vena cava, causing rapid and extensive thrombosis inducing the condition detailed; and (3) opening of the aneurysm into the superior vena cava with the final and fatal attack.

Dr. DRYSDALE showed a specimen of Aneurysm of the Thoracic Aorta from which hæmorrhage had taken place into the substance of the wall of the œsophagus where it had burst. The effused blood had tracked down between the coats of the œsophagus into the wall of the stomach where it had burst through the mucous membrane into the cavity of the stomach.

Dr. J. H. THURSFIELD showed specimens of—1. Adenoma of the Liver; a small whitish tumour, divided by fibrous trabeculæ into lobes, was situated in the upper and anterior portion of the right lobe. It was found at the post-mortem examination of a man, aged 64 years, who died from cellulitis of the thigh. 2. Absence of the Gall-bladder. A liver of a child, aged three years, who died from acute rheumatism with dilatation and hypertrophy of the heart. There was no trace of the gall-bladder.

## ROYAL ACADEMY OF MEDICINE IN IRELAND.

### PATHOLOGICAL SECTION.

*Fungus Mycelium in the Kidney of a Rabbit.—Chromogenic Organisms.*

A MEETING of this section was held on March 27th,

Professor E. J. MCWEENEY, the President, being in the chair.

The PRESIDENT read a paper on the Changes in the Kidney of a Rabbit due to Experimental Intravenous Injection of Mould Spores. Some rabbits had received injections of blood that had stood for a considerable time in the refrigerator and had become mouldy. One of them sickened and post mortem one of the kidneys was found enlarged to four times its normal size. On section it was found to be everywhere inter-penetrated with tufts and isolated filaments of fungus mycelium with here and there apparently attempts at the formation of sporogenous hyphæ of the aspergillus type. The renal parenchyma had disappeared to a large extent and was replaced by a fibroblastic granulation tissue containing numerous foreign body giant cells of the largest kind, swarming with cells containing acidophile granulations of moderate coarseness, whilst others contained granules with a tendency to fix the basic dye—Ehrlich's amphophile or B-group. These cells differed from the eosinophiles of human blood in being for the most part mononuclear and fibroblastic in type. The fungus hyphæ were arranged, sometimes singly, sometimes in groups of parallel or stellately arranged filaments, and sometimes in short oidium-like segments. Many of the shorter fungus elements were inclosed in giant cells. They were devoid of protoplasm and their highly refractive cell wall was distinctly amphophile in reaction. It did not stain selectively by Gram's or Ziehl-Nielsen's methods. It was not known why the injected fungus had lodged in one kidney only. The normal one had been examined and no fungus was found.

The PRESIDENT also showed cultures of a number of Chromogenic Organisms obtained in the course of various bacteriological investigations. Two belonged to the non-liquefying fluorescent group and were remarkable, one of them for its extremely powerful fluorescent dichroism, and the other for the fact that in old cultures the fluorescent green became brown near the surface of the gelatin. Another species he showed was cladothrix nigra of Rossi Doria, the cladothrix dichotoma of others. Its pure brown diffusible pigment was very remarkable and accounted, he ventured to think, to some extent, for the brown colour of peaty soils which were the natural habitat of this organism. The fluorescent and brown pigments were devoid of typical spectra.

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SOCIETY OF MEDICAL OFFICERS OF HEALTH.—A meeting of this society was held on April 3rd, Dr. J. Spottiswoode Cameron, the President, being in the chair.—Dr. Joseph Groves, medical officer of health of the combined sanitary districts of the Isle of Wight, on being elected President for the ensuing year, said that he looked on his election to that important office as a recognition, though a tardy one, of the good work done by the large army of "half-timers," as they were called—men engaged more or less in general practice who enjoyed few opportunities of distinguishing themselves in the scientific world and on whom the ignorant and popular jealousy of sanitary improvement with all that it involved pressed most heavily. As one of the oldest, if not the oldest, of this body of men he stood before them, and in his address, which had been hurriedly composed within the last fortnight, he hoped to call attention to the difficulties under which they laboured and which for special reasons many of his brethren felt more acutely than he did himself. In introducing his subject of Sanitary Administration he need not insist on the wide differences of character in various districts, urban and rural, rich and poor, but he must notice the paradox that while all recognised the health of the individual to be the greatest blessing, and admitted that of the public to be the basis and essence of national prosperity, their legislators and administrators, instead of welcoming any measure that could conduce thereto, should, if not actually oppose, postpone such to every other consideration. Sir Michael Foster, in an able article in the *Nineteenth Century* for January, characterised the Local Government Board as a "phantom Board," consisting of President, secretary, and staff of officials. Reviewing the evolution of the Ministry he showed how, as the work of the several Secretaries of State had increased, new departments were constituted. But the estimation in which each was held might be gauged by the salaries of the heads, which were £5000 in the case of each of the so-called Secretaries of State and £2000 only in that of the President of the Local Government Board. And as were the salaries of the chiefs so were those of all their subordinates, but Mr. Austen Chamberlain maintained that this disparity was justified by the lower standard of intellectual attainments required for the administration of local government. If this were so as regarded the Poor-law the sooner the Board was relieved of the control of the public health, the problems connected with which were often of the most complex scientific character, the better. With a higher salary the President would command greater respect, in which his officials would share. The Board had, however, very little power of control though it had done good work and collected a mass of valuable material. The political party now in power had, indeed, given them nearly all their sanitary legislation, but they had not of late years fulfilled the aspirations of Lord Beaconsfield after a policy in which the public health should be the first consideration, and the Local Government Board might effect great improvement without additional legislation by simply removing such obstacles to progress as uncertain tenure of office. In most rural districts the practice had been at first to appoint the Poor-law surgeons as medical officers of health to their districts with small additions to their salaries. Then with a view not to greater efficiency but to saving a few pounds on each, a number of districts would combine to appoint a single officer who might or might not be required to devote his whole time to his duties, but was always appointed for a limited number of years, from one to five. At the end of the period any district might retire or the whole might break up, leaving the officer, if he had been debarred from private practice, without the means of earning a livelihood. It was not an infrequent occurrence for an officer who had done his duty conscientiously to find himself at the end of the year not dismissed but superseded, another being appointed without his knowledge, and there were few who, as the time for re-election drew near, had not had threats or hints, perhaps of a friendly character, as to excess of zeal; yet the Local Government Board defended the short-term system, apparently under the impression that fixity of tenure would lead to indolence and that the fear of not being re-elected would urge the officer to the energetic performance of his duties. It had objected to giving security to conscientious men on the ground that it would be given at the same time to the inefficient and unconscientious, whereas the latter enjoyed for that very reason certainty of re-election, while the former were in constant fear of losing their appointments. The Local Government Board was in the position of the senior partner and the local authority of the junior, and while the former issued orders and instructions the latter threatened the officer with dismissal if he obeyed them. When the Local Government Board admitted the injustice of such dismissal it pleaded inability to protect the officer; but if it had not the power why did it not obtain it? The Poor-law surgeon whose duties did not bring him into conflict with his employers could not be removed without its consent; the medical officer of health and the sanitary inspector were at the mercy of the local authority, and the temptations of the inspector, a poorer man, were even greater. The clerks and surveyors held office during good behaviour, but the sanitary officers were secure only while they subordinated their duties to their interests. More power should be given to the Local Government Board and the county councils. Medical officers of health of counties and towns should be appointed for life, and those of small rural districts should not be allowed to suffer for doing their duty and carrying out the instructions of the Local Government Board which they were bound to obey.—Mr. Herbert Jones said that if even six months' notice of dismissal were required a certain amount of sympathy would be aroused and of odium incurred by the authority which would go far to protect the medical officer; but they did not dismiss, they simply did not re-elect the medical officer. In large towns the medical officers whose energy and good work were appreciated by the public enjoyed a virtual security, since the members of the council would fear to face the indignation of their constituents at the poll, but the reports of the inspectors of the Local Government Board teemed with instances of unjust dismissals of officers of smaller urban and rural districts for no other reason than that they had obeyed the instructions of the Board. The Local Government Board professed a reluctance to give fixity and permanence to the very small appointments, but these were not so numerous as was commonly supposed. Dr Garstang, for instance, found in the Medical Directory

no fewer than 90 instances in which the salaries were between £10 and £20, but most of these appointments were held along with others, so that, as a matter of fact, of about 1350 medical officers of health 36 only were in receipt of £20 or less and 363 of from £20 to £50. On the occasion, in 1893, when the Local Government Board received a deputation from the society, Sir Walter Foster assured them that the Board was strongly in favour of permanent appointments and he would like to ask the Board now how many, if any, such appointments had received its approval. There were instances in which it had actually refused to sanction appointments to large towns for five years and required them to be made annually. In rural districts the authorities were often ignorant of the provisions of the Acts which they were supposed to administer and reprimanded their inspectors for reporting nuisances or visiting houses where no complaints had been made. In rural districts road foremen and others equally incompetent were often employed by the highway authorities as sanitary inspectors from motives of economy.—Dr. Newsholme and others having spoken, the President remarked that the Local Government Board occasionally assumed an obstructive attitude in its dealings with progressive urban authorities, refusing, for instance, its sanction to a novel scheme for sewage disposal or to the superannuation of an estimable but aged medical officer and the appointment at a smaller salary of an assistant with promise of succession to the office. It was in the rural districts only that its intervention was to be desired.

MANCHESTER MEDICAL SOCIETY.—A meeting of this society was held on April 1st, Dr. A. M. Edge, the President, being in the chair.—Dr. P. R. Cooper mentioned a case of Atrophy and Hour-glass Contraction of the Stomach and made some remarks on the occasional clinical association between œsophageal spasm and various gastric conditions. A single woman, aged 68 years, complained of great difficulty in swallowing and dryness of the mouth which had troubled her for months. She was distinctly neurotic and would not allow the passage of a stomach-tube. She was extremely emaciated and had a cachectic appearance. No evidence of organic disease could, however, be discovered and under treatment she made a satisfactory recovery. Three years later the symptoms recurred and the general condition was even worse, necessitating treatment in a nursing home on Weir-Mitchell lines. Again recovery ensued, the patient becoming able to take food and gaining surprisingly in flesh and strength. The improvement was maintained for three years and then again there was a relapse. This time the patient did not seek advice until emaciation and prostration were extreme and although she was fed by the stomach tube and per rectum she died from asthenia. At the necropsy the œsophagus was found to be normal and there was no evidence of any growth external to it or involving the branches of the vagus. The stomach was small, shrunken, and "hour-glass" shaped and on opening it the circular depressed cicatrices of two chronic ulcers were seen, one on either side of the constriction and rather on the anterior wall. The constriction was situated much nearer the pyloric than the cardiac end and the channel connecting the two stomach cavities would barely admit a quill. The muscular coat of the stomach was hypertrophied, but there was no infiltration, either of an inflammatory or malignant character, as confirmed microscopically. Referring to the clinical association between the dysphagia and the gastric condition, a paper by M. Maurice Soupault[1] was quoted, giving an account of four cases all simulating stricture of the œsophagus which post mortem proved to be due to atrophic retraction of the stomach, three being the result of carcinoma and one a sclerosis following corrosive poisoning. Such cases could hardly be mere coincidences and it seemed not unlikely that others might have been overlooked from want of necropsy, &c., and that there existed a definite clinical relationship, either direct—i.e., from nervous overflow—or reflex, between the gastric lesion (obstruction) and the œsophageal spasm. At all events, the possibility was worth bearing in mind in the diagnosis of obscure cases of apparently functional œsophageal spasm or stricture.—Mr. F. A. Southam made some remarks on the Operative Treatment of Prostatic Obstruction and gave details of cases where suprapubic prostatectomy had been followed by satisfactory results.—Mr. W. Thorburn described a Modification of the Operation of Castration recently practised by him. The object of the operation was to obtain high access to the spermatic cord without the risk of infection, which was greater than normal in the case of scrotal wounds, and especially in operations for disease connected with ulcers or sinuses. The patient being prepared, the compress was in the first instance removed from the pubic region only. An incision was made over the upper part of the spermatic cord; this was seized, brought well up, doubly ligatured, and cut across at the highest possible point. It was then dropped back and the wound was entirely closed by suture of the internal oblique muscle to Poupart's ligament and of the external oblique aponeurosis and skin. A second incision was now made over the testicle which could be rapidly isolated and dragged away with its cord. The two wounds were quite disconnected; the total incision was less than that usually employed. The operation was easy and rapid.—Dr. R. B. Wild read a preliminary note upon the use of the Finsen Light and the Roentgen Rays in the Treatment of Lupus and Malignant Disease which was based upon an experience of 150 cases treated during the last two years. Taking the cases which had been discharged 72 were lupus vulgaris and 32 were malignant disease. Of the cases of lupus vulgaris 20 had been treated by the Finsen lamp and of these 11 were completely healed and four very much improved, a total of 75 per cent. in which the result was satisfactory. Of 23 cases treated by the Lortet lamp two were healed and four were much improved, a total of 26 per cent. Of 29 treated by the Roentgen rays nine were healed and nine were much improved, a total of 62 per cent. Many of these cases were, however, much more severe and extensive than those treated by the Finsen lamp. As regards malignant disease no permanent benefit had been found in eight cases of inoperable carcinoma, chiefly scirrhus of the breast; in epitheliomatous ulceration benefit was obtained in three superficial cases, two of which recurred, and in three other and deeper cases there was no improvement. In four cases secondary epitheliomatous glands over which the skin was intact were treated but without any good results. In rodent ulcer the results were very different; out of 17 cases discharged 12—i.e., 71 per cent—were completely healed; in five there was either no benefit or a more rapid growth, and in four of these five bone or cartilage was involved. Finally, the dangers of the Roentgen rays were considered and it was emphatically stated that they ought only to be used under the supervision of a medical man.

ABERDEEN MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on April 2nd, Dr. J. Gordon, the President, being in the chair.—Dr. J. Theodore Cash read a paper on the Action of the Aconitines illustrated by numerous lantern slides.—Dr. J. S. Ross read a paper on Premature Separation of the Normally Situated Placenta, founding his remarks upon 34 cases which he had observed at St. Mary's Hospital, Manchester, by permission of the visiting staff. In the etiology he laid stress on nephritis; one of the cases occurred in an eclamptic patient. The mortality in recorded severe cases was heavy—50 per cent. (Goodell), 46 per cent. (Storer). 14 of the cases observed by Dr. Ross were serious and of these two died. In a short account of the symptoms he emphasised the element of shock which added gravity to the acute anæmia. The paper dealt chiefly with treatment. If good pains were in progress and the cervix was nearly sufficiently dilated all agreed to puncture the membranes with operative extraction later if necessary; but in cases with no pain or dilatation there were various views as to treatment. Goodell advocated early puncture of the membranes in order to promote uterine retraction and contraction. Dr. Ross doubted whether retraction was of much use so long as the fœtus was still in utero and contractions did not always come on promptly. He read notes of three cases which he had himself seen, where this treatment greatly increased the severity of originally mild cases. Accouchement forcé he condemned because of the shock and post-partum bleeding induced. Gradual dilatation of the cervix was usually done in England and Scotland by de Ribes's bags; but the treatment which seemed to give the best results of all was the Rotunda Hospital method of vaginal plugging. He had himself used it in 14 cases, some of them very severe, without a death. After pains came on he sometimes used a bag or operative extraction (five cases). Jellett claimed that this treatment reduced the mortality from six in 56 cases to one

[1] Bulletin de la Société Médicale des Hôpitaux, June, 1902.

in 57. Porro's operation, first suggested by Donald of Manchester, he reserved for the most severe cases; he only knew of one case (Bagot's) where it had been successful.—Dr. W. Stephenson, Dr. R. G. McKerron, Dr. G. M. Edmond, Dr. A. Westland, and the President took part in the discussion on the papers.

ROCHDALE AND DISTRICT MEDICAL SOCIETY.—A meeting of this society was held on April 2nd, Mr. W. Stanwell, the President, being in the chair.—Dr. A. B. McMaster read a paper on Small-pox. After a historical introduction he gave an account of the present epidemic in Rochdale up to date. In six months there had been 58 cases. None of these patients had been recently vaccinated when the disease was contracted. 38 patients had been successfully vaccinated in infancy, and of these six had one mark, 20 had two, seven had three, and five had four marks. Three patients had been vaccinated unsuccessfully in infancy. 17 patients were unvaccinated, but eight of these were vaccinated after contact with the source of infection. There were three deaths, one of which was due to heart disease and the two others occurred in unvaccinated persons. Details of the 58 cases were given and special attention was drawn to the case of a woman whose husband and five children were in contact with her during the first five days of the illness. The husband and two children (aged ten and three years respectively) had been vaccinated successfully in infancy; another child, aged seven years, had been vaccinated unsuccessfully in infancy and the remaining two children, aged five and four years, were unvaccinated. The husband and four elder children were vaccinated on the fifth day of contact but it was not considered necessary to revaccinate the youngest, although the child had slept with the mother. The result was complete protection in the case of the father and the eldest and youngest children. The child aged seven years who had been vaccinated unsuccessfully in infancy and revaccinated after contact had symptoms of variola but no rash. The children aged four and five years, who were vaccinated for the first time on the fifth day of contact, had the disease in a mild form. In concluding Dr. McMaster expressed his thanks to Dr. J. Henry, the medical officer of health of Rochdale, for according him facilities for the collection of material for his paper.—Mr. G. W. Malim, Mr. J. Chadwick, and others took part in the discussion which followed.

PLAISTOW AND CANNING TOWN MEDICAL SOCIETY.—A meeting of this society was held on March 25th. Mr. Percy Rose was in the chair.—Dr. E. Hay showed a case of Impacted Extra capsular Fracture of the Femur in a Young Seaman. The fracture was the result of direct violence from a heavy weight falling on the body, the injury having been sustained some two months previously. The case derived its chief interest from the fact that no treatment whatever was used for the first six weeks, the man being at sea and no medical aid being available.—Mr. F. J. Steward read a paper on Some of the Clinical Aspects of Appendicitis. The mild cases uncomplicated by peritonitis were first considered, attention being called to the fact that many patients suffered from repeated mild attacks which they put down to dyspepsia and biliousness and which were therefore frequently unrecognised as appendicitis. Cases in which such symptoms had been cured by subsequent removal of the appendix were cited. Cases complicated with peritonitis in varying degrees were then discussed and classed in three main groups according as the peritonitis was entirely localised, localised first and then spreading, or spreading from the first. The chief points in the diagnosis and the indications for operative treatment were then separately considered.—A short discussion followed and the proceedings terminated with a vote of thanks to Mr. Steward for his eminently practical address.

PATHOLOGICAL SOCIETY OF MANCHESTER.—A meeting of this society was held on April 8th, Dr. H. A. G. Brooke, the President, being in the chair. Dr. D. Lloyd Roberts showed the Pelvis of an Adult Achondroplasic Dwarf.—Dr. W. J. Sinclair made a communication on Nutritive Changes in the Uterus due to Retroflexion. He demonstrated, by means of a series of drawings in water-colours, a number of cases in which enlargement and erosion of the posterior lip of the cervix uteri occurred in connexion with retroflexion and disappeared after this had been corrected by the operation of ventro-fixation. In cases of pathological anteflexion enlargement and erosion of the anterior lip of the cervix were demonstrated.—Mr. C. Roberts exhibited a large Malignant Growth of the Left Testis from a case of spurious hermaphroditism, together with photographs of the patient and of another example of the same condition.—Dr. C. H. Melland demonstrated by means of a series of microscopic preparations several of the more unusual varieties of sarcomata, the origin of endotheliomata being especially clearly illustrated.—Dr. W. H. Brazil showed (*a*) examples of the Lepra Bacillus, and (*b*) a large Cyst in the Liver of a child, seven years of age, who had died from scarlet fever. The cyst was probably hydatid in nature although not typical in appearance.

SOUTH-WEST LONDON MEDICAL SOCIETY.—The monthly meeting of this society was held at Bolingbroke Hospital on April 8th, when a number of cases of clinical interest were shown, including the following: a case of Aortic Aneurysm, by Surgeon-Major Mark Robinson, late I.M.S.; a case of Hæmorrhagic Diathesis, by Mr. H. B. A. Pearson; Lupus Erythematosus and a case of (?) Epithelioma of the Face following a Burn from a cigar, by Dr. M. Mackintosh; a case of Toxic Amblyopia, by Surgeon-Captain E. W. St. Vincent Ryan, A.M.R.; and (1) a case of Recurrent Cancer of the Breast and (2) a case of Tuberculous Ulceration of the Arm and Foot, both of which had been treated by the x rays, by Mr. E. M. W. Hearn.—Drawings and microscopical specimens of Growths of the Tonsil were shown by Mr. Macleod Yearsley and Messrs. Krohne and Seseman exhibited a variety of surgical instruments and appliances.

GLASGOW SOUTHERN MEDICAL SOCIETY.—At a meeting of this society held recently, Dr. Macgilvray, the President, being in the chair, a paper on Extra-uterine Gestation was read by Dr. J. K. Kelly who gave an interesting sketch of the history of the subject and dwelt on the theories advanced as to the causes. With regard to the situations where the impregnation might take place, Dr. Kelly expressed himself as being sceptical as to the probability of the abdominal and ovarian variety of impregnation.—At the conclusion of the paper the President moved a hearty vote of thanks to Dr. Kelly for the clear manner in which he had demonstrated the method of diagnosis, the difficulties of which at times gave the general practitioner some concern.

# Reviews and Notices of Books.

*The Mycology of the Mouth: A Text-book of Oral Bacteria.* By KENNETH W. GOADBY. Pp. 241, with 82 Illustrations. London: Longmans, Green, and Co. 1903. Price 8*s.* 6*d.*

MANY years have passed since Miller published his book on "Micro-organisms of the Mouth." Since then much work of varying value has been done and the necessity for collecting it and separating therefrom the important from the unimportant has long been felt. Although primarily intended for the dental student—to whose curriculum the subject of bacteriology has recently been added—the present book will be found instructive to students of medicine and will serve to correct many current fallacies as to the causes of the pathogenicity of the mouth. Of the many organisms that may at times be found in the mouth Mr. Goadby has chosen those which are most common and for purposes of description he has arranged them under certain headings, such as pathogenic bacteria of the mouth, those associated with dental caries, and those which may occur in tooth pulps, in dento-alveolar abscesses, in pyorrhœa alveolaris (suppurative periodontitis), and those peculiar to the mouth.

In the section dealing with the pathogenic organisms there is an able discussion on the possible relationship of the streptococcus pyogenes longus and the streptococcus brevis (Van Lingelsheim). The latter is a constant inhabitant of all mouths, clean and dirty, and is probably the organism frequently described by observers as the ordinary streptococcus of pus, leading consequently to incorrect

deductions. The comparative infrequency of the ordinary pyogenic organisms is well brought out and stress is laid upon the fact that in some mouths such pathogenic organisms as the bacillus diphtheriæ and the diplococcus pneumoniæ may be present in a virulent condition and that although in such mouths they may produce no ill effects, if transferred to others, finding their new environment more favourable, they may give rise to their respective diseases—a point which emphasises the need of thorough cleanliness in those engaged in work about the mouth.

A short account of the chemistry of foodstuffs is included in the chapter on Dental Caries and thus simplifies the understanding of the study of the subject which is closely related to fermentation. The bacteria associated with dental caries are divided into those which are acid-forming and those which liquefy dentine. Concerning the liquefying bacteria Mr. Goadby states, "some will dissolve fibrin and blood serum, others only gelatin. The one dissolving blood serum I have found also capable of digesting decalcified dentine, while many of those only liquefying gelatin do not attack dentine (decalcified)."

The condition known as pyorrhœa alveolaris (suppurative periodontitis) introduces the important subject of oral sepsis. In this chapter the virulence of the toxins of the organisms concerned is clearly demonstrated, guinea-pigs rapidly succumbing to an injection of emulsion of them or of the filtrate of old broth cultures. The investigations of Mr. Goadby do not bear out Dr. W. Hunter's assertion that the various results of oral sepsis are due to "the pus cocci so frequently present in the mouth," but they rather tend to show that they are due to the toxins produced by the organisms concerned in pyorrhœa alveolaris and other suppurative conditions of the mouth. The comparative immunity to gastritis and other complaints shown by many persons with most impure mouths is explained by the author along the lines of Ehrlich's theory by the suggestion that the tolerance to poisons produced in the mouth is similar to the "large degree of tolerance which may be produced in an animal by repeated injections of increasing doses of a given organism or its toxins."

The accurate bacteriology of ulcerative, aphthous, and gangrenous stomatitis, and many other conditions remains undetermined and thus indicates how much there is concerning oral bacteriology which still requires to be elucidated.

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*School Hygiene: The Laws of Health in Relation to School Life.* By ARTHUR NEWSHOLME, M.D., F.R.C.P. Lond., Medical Officer of Health of Brighton, Examiner in State Medicine to the University of London; and WALTER C. C. PAKES, D.P.H., Analyst and Bacteriologist to the Transvaal Government; with a chapter on Eyesight by JAMES KERR, M.D., Medical Officer to the London School Board. Ninth Edition. With 43 Charts and Illustrations in the text and an Index. London: Swan Sonnenschein and Co., Limited. 1903. 8vo, pp. 311. Price 3s.

THE fact that this work has reached its ninth edition is in itself evidence that it has been appreciated in the past and that the circle of its readers has been a wide one. This is not surprising, for the information supplied is just such as everyone connected with the training and education of the young should know. Further than this, without such knowledge, no one, however efficient or cultured otherwise, can hope to arrive at a true idea of the teacher's vocation—that of an "educator" and not that of a "crammer"—nor in the vast majority of cases will the principles be appreciated that underlie the hackneyed phrase, *mens sana in corpore sano*, or the fact be understood that each child passing through school life is an infinitely complex organism, every organ and function being so intimately connected that a weakness in any one part must react so as to prevent the highest development of the whole.

Nowadays a certain amount of instruction in the laws of health finds a place in the training of all teachers, and even if this were not so the Board of Education has been careful to supply for the guidance of those interested in the education of the young instructions which it is the duty of every teacher to understand and to carry out. Still, after reading this volume we cannot help expressing the opinion that even those who have given this subject their careful consideration and have been at pains to formulate for themselves an ideal as to methods of instruction will almost certainly gain fresh ideas from many of these pages, often perhaps by the subject being presented in a new and original light. For the work is admirably planned and skilfully executed. The authors' style is clear and succinct without any sacrifice of detail. Where technical descriptions are necessary, as where the structure and functions of the central nervous system are described, the reader is not confused by a multitude of scientific names or even by complicated diagrams. The knowledge is conveyed in a simple clear word-picture and we venture to say that there is not a paragraph in the book that any educated person will not be able to grasp easily without any previous special knowledge.

As compared with other books dealing with hygiene in relation to school life this one will be most useful to those who have charge of pupils in large day schools. Up to a certain point, of course, the principles of school hygiene are the same for both day and boarding schools; but then comes a parting of the ways and much that might well find a place in a book for the guidance of masters in a boarding school would be out of place in a book intended for day-school teachers and *vice versâ*; for instance, the question of rest and sleep is discussed in this work in three and a half pages and the consideration of diet occupies only four pages, which, of course, would be quite inadequate treatment for the proper dietaries required in a boarding school. The chapter on the Programme of School Work also is written entirely from the point of view of the day school, and especially of the elementary school, and many of the most interesting parts of the book under consideration deal with the proper care and training of children in infant departments at an age when they would not have reached a boarding school at all.

Dr. A. Newsholme has in the present edition associated with himself Mr. W. C. C. Pakes who is more directly responsible for Part II. dealing with "Schools," while Part I., treating of "Scholars," is written by Dr. Newsholme himself.

In reviewing a book the general excellence of which is so high it may seem superfluous to particularise. We cannot, however, refrain from commending to all thinking teachers several sections of Part I. In Chapter I. the nervous mechanism on which the powers of observing, remembering, speaking, and writing rest, is described, and the ethical bearings of education are shortly alluded to. In Chapter II. the ideals to be aimed at in training the young are considered and wrong or hurtful exercises and methods are detailed. In Chapter III., and in other parts, Dr. Newsholme deals with the results and symptoms caused by excessive mental exercise and explains scientifically many actions and habits of pupils that may have been a puzzle to their teachers. The subject of examinations is also dealt with—chiefly from the elementary school point of view. Practical teachers may say that some of the opinions expressed are somewhat Utopian and that few examiners aim so much at discovering what the pupil does know as what he does not, but they must admit that too many teachers look upon the passing of examinations as the principal object of all school instruction and that the system of cramming is of little or no permanent educational value.

The part of the book, however, which teachers and school managers will read with most interest—and the subject has

been dealt with most exhaustively—is that on Acute Infection and Communicable Diseases. Now that State-aided schools are given grants based on the average attendance and not on "results," and inspectors are no longer doomed to be inquisitors but are left free to find out really how much the pupils know, and to help with their advice teachers to whom their visits were formerly an ordeal, it is obviously to the advantage of the pupils, the teachers, and the managers that no infectious disease should get a footing in the school or in the community. If such does break out it must be stamped out as speedily as possible. This can only be done by restricting the attendance of infected scholars and suspects if the schools are not to be closed outright. Apart from their natural desire to earn as high a grant as possible school managers and their teachers have a duty towards the State. If they but consider the statistics, say of diphtheria, before and since 1872 in the London district or elsewhere, and note the continued ravages of the disease in spite of improved sanitary administration, they cannot fail to acknowledge the part that the close aggregation of children in schools plays in the spread of this and other infectious diseases. After all school training is but an episode in the life of a human being. Education begins before the school age and continues after it. Also each life lost, even at an early age, is a definite loss to the State. Looking at the question from this broad point of view, and seeing that the Board of Education has provided for the enforced absence of children suffering from infectious disease we do not think that the somewhat protracted period of necessary absence laid down by Dr. Newsholme in the case of some of the infectious diseases need be cavilled at. What ultimate profit is there in sending a pupil back to school too soon, while as yet perhaps not absolutely innocuous, if, in order to gain a few hours' instruction for one many others may be infected and thereby the risk be incurred of losing lives which would be afterwards of definite value to the State? Dr. Newsholme's statement of the facts is clear and is likely to induce all teachers and school managers to work side by side with the medical officers of health; moreover, he is at pains to reproduce and to explain the necessary forms which the Board of Education requires to be filled up to prevent any loss of grant.

Part II. deals with the construction and fittings of schools. It comprises just over 100 pages, and in this space Mr. Pakes has dealt with all the important points. He has done so, too, with a due sense of their proportionate importance. Thus he devotes about one-half of his space to the consideration of the lighting, heating, and ventilation of schools. In view of the experiments of Carnelley in Dundee and Dr. Kerr at Bradford there can be no doubt that these are the principal problems that confront school managers in planning a new school if they wish to give their pupils and teachers the best chance physically and mentally and to obtain the highest educational results. Mr. Pakes not only describes the physical laws and agencies on which efficient warming and ventilation depend, but by a comparison of different methods he makes an effort to guide even anyone uninstructed in the matter to a proper estimate of such different schemes as may be laid before him. Teachers will also find these chapters interesting not only *per se*, but as showing how directly proper ventilation and a pure atmosphere react on the mental activity of pupils.

In Part I. Dr. Kerr of the London School Board supplies a chapter on Eyesight in School Life. No organ may more easily suffer during this period than the eye, and Dr. Kerr does wisely in showing, by a description of the development of the eye from birth to maturity and after, how especially in infant departments the eye of the scholar is very different from the eye of an adult and utterly unsuited for much of the work which an adult can do with ease. The case against too close work for infants and against overstrain in all pupils is clearly stated, and the description of the different symptoms of abnormality of vision is bound to be of much use to all teachers. By means of such knowledge and by practising the instructions given by Dr. Kerr they may be able to save many a child from the infirmity of bad eyesight in later life, where the initial weakness began through a functional bad habit which, uncorrected, got "set" into actual organic defect.

There are two appendices, one of ten pages, in which are given extracts from the code of instructions issued by the Board of Education as far as these apply to the external and internal construction and fittings of schools, and the other containing the recently issued instructions of the board with reference to infectious diseases.

A chart of Snellen's test types suitable for immediate use as indicated on p. 97 is incorporated.

There is a short index of three pages, which is, however, sufficient for its purpose.

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*Ophthalmic Nursing.* By SYDNEY STEPHENSON, M.B., C.M. Edin., Ophthalmic Surgeon to the Evelina Hospital. Second edition, with 62 Illustrations. London: The Scientific Press. 1902. Pp. 191. Price 3*s.* 6*d.* net.

ALTHOUGH the principles that should guide the surgeon in the treatment of the diseases of the eye are the same as those which are adopted in the practice of surgery generally there are many details which, when properly carried out, materially contribute to alleviate the discomfort of the patient and to relieve the anxiety which he naturally feels. A well or badly applied bandage may make all the difference between a good night and quiet sleep or a restless night with disturbed sleep from which the patient wakes feverish and unrefreshed, and the success or failure of an operation for extraction of cataract may easily depend upon such a circumstance. It is not everyone who can evert the upper lid or, when after repeated efforts he has accomplished it, is prepared to remove the very minute fragment of coke or dust that may be the cause of much pain. The student who is about to take service in the ophthalmic wards of a general hospital or the practitioner who has had but rare opportunities of acquiring a knowledge of modern methods of treating the more common diseases of the eye and the nurse will find in the pages of this volume just the information in small compass that he or she requires.

The principal additions that have been made to this edition of Mr. Stephenson's work are the mode of rendering aseptic the various dressings, fluids, flasks, and instruments which are in constant use in ophthalmic practice. Thus an account and drawing are given of Stroschein's aseptic bottle which can be heated, being made of thin glass, over a spirit lamp. The special treatment of the various forms of contagious ophthalmia, in which Mr. Stephenson has had an exceptionally large experience, is given with great care and detail without being diffuse and constitutes a very important chapter of a valuable work.

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## LIBRARY TABLE.

*Bibliography of the World's Municipal Literature.* By ROBERT C. BROOKS. Second edition, revised and enlarged. London: P. S. King and Son. 1902. Pp. 346. Price 6*s.*—We imagine that to compile a bibliography such as that before us, in which attempts have been made to include the books, pamphlets, and periodical literature on the municipal affairs of Great Britain and the colonies, the United States of America, Germany, France, Italy, Spain, and other European countries, must have been an immense labour, assuming that the references are fairly complete. Of course, such a work is of value to all those interested in the efficiency of the public health services, for the topics comprise such subjects

as sewage disposal, lighting, police, sanitation, water-supplies, prostitution, electrolysis, and so on. No doubt the bibliography is more complete in regard to the subjects dealt with in the United States of America than elsewhere. There is evidence of this again and again. For example, the heading "Bossism in City Politics" may appear puzzling to the English reader, but it refers, of course, to the arrogance of the city politician who apparently has a strong tendency to "boss it" as the Americans say, over his fellow-men. The book obviously supplies a want, but it will probably be less useful on this side of the Atlantic than on the other.

*The Clinical Examination of Urine, with an Atlas of Urinary Deposits, including 41 Original Plates, mostly Coloured.* By LINDLEY SCOTT, M.A., M.D. Aberd. London: J. and A. Churchill. 1900. Pp. 56. Price 15*s.*—The feature of this book is the admirable series of plates which it contains, making it the best atlas of urinary deposits that we ever recollect seeing. Except one plate illustrating rare animal parasites which have been copied from original drawings, all have been drawn from specimens under the author's own microscope, "the aim being to arrange the objects in a microscope field in such a way as to portray their essential and distinguishing characters." In our opinion the author has achieved this result with conspicuous success; the effect is realistic and artistic, the colouring is true, and the shading is correct. For the microscopical examination of urinary deposits the work is most valuable. There are chapters on general considerations and on the composition of urine, its physical properties, its normal and abnormal constituents, its leading characters in health and disease, its bacteriology, and its toxic properties. The cryoscopic method as applied to the examination of urine is not mentioned, but on the whole the methods of chemical analysis described are those which are generally accepted as being fairly accurate and convenient to practise. We should have thought that in this regard the copper cyanide process of estimating sugar in urine would have been preferred to the old Fehling process or that modification of it suggested by Dr. Pavy. The ammonia fumes in Dr. Pavy's process are troublesome while the accuracy of the method depends upon the ammoniacal strength of the liquid and as this necessarily alters in boiling the results vary. By substituting potassic cyanide for ammonium hydrate the blue colour is discharged to a colourless solution in the same way, there are no fumes, and the results are concordant. The plates with their descriptions are really excellent and should make microscopical examination a powerful as well as an interesting aid to diagnosis *per* the urine.

*The Evolution of Artificial Mineral Waters.* By WILLIAM KIRKBY, F.I.S. Manchester: Jewsbury and Brown. 1902. Pp. 155. Price 3*s.* 6*d.*—That part of this book devoted strictly to the history of mineral waters is decidedly interesting and particularly those sections in which the first attempts to imitate natural waters are described. The rest of the work is devoted to the description of modern methods and to modern machinery, the illustrations referring to the premises and plant of a well-known firm of mineral water manufacturers in Manchester. We should have thought that a useful chapter might have been introduced on the exact nature of the solution of carbonic acid gas. The author is a chemist and it would have been interesting to have had his views regarding the possibility of the presence of true carbonic acid—$H_2CO_3$. Again, the question as to how it is that artificially impregnated waters give up their carbonic acid gas more quickly than do naturally impregnated waters might have been shortly discussed. Another interesting point in connexion with aerated waters is the different character of the effervescence shown in different liquids. Thus, why do the bubbles break quickly in plain soda-water but form a sort of cream lasting for some time in lemonade? and why do soda-water and whisky give bubbles which soon break while soda-water and genuine brandy give a soapy film? It seems to us that the author missed an excellent opportunity of making observations on these points and thus of adding to the scientific value of the book. As we have said, however, the section dealing with the historic evolution of aerated waters is interesting reading, but that relating to modern machinery is dull and in most instances limited to the description of that adopted by a certain firm.

## JOURNALS AND MAGAZINES.

*The Field Naturalist's Quarterly.* No. V., Vol. II. Edited by GERALD LEIGHTON, M.D. Edin. London and Edinburgh: William Blackwood and Sons. Price 2*s.* 6*d.*—Field naturalists owe a tribute of gratitude to Dr. Leighton for the many excellent articles which were published under his directorship in the *Field Naturalist's Quarterly* last year and this debt will be largely increased at the close of the present year even though he may only half fulfil his new programme. Both the expert and those who are new to field work are well provided for and special efforts will be made to help those out-door workers who may be able to do little or no laboratory work to a scientific appreciation of the observations which they may make. The present issue commences a new volume and the article which will perhaps most appeal to the medical man is that on the study of Microfungi by Mr. C. Theodore Green, M.R.C.S. Eng., L.R.C.P. Lond. The purpose of the article is to show how fascinating is the study of these small bodies with the aid of the microscope and details are given of the methods of work to be adopted. As the author points out the study of microfungi is well adapted for ladies, the processes involved being cleanly and requiring delicacy of manipulation.

*The Health Resort.*—We have received the first number of this new monthly periodical, the sub-title of which is "A Journal of Spas and Sanatoria." It is devoted to making more known and more popular the benefits of British health resorts. We are glad to see an article upon Irish health resorts which are far too little known in this country. The magazine is well illustrated and if future numbers keep up to the level of the first it should prove a success.

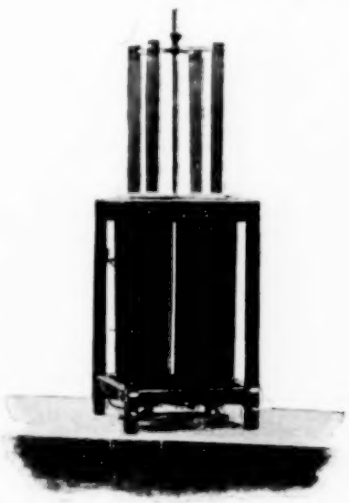
# New Inventions.

## THE NODON VALVE: A CHEMICAL RECTIFIER FOR ALTERNATING CURRENTS.

THIS is an apparatus of great interest and one which will be welcomed by medical men whose houses are supplied by an alternating current electric light system. By its use the alternating current can be "rectified" into a continuous, or almost continuous, current, which will serve to charge accumulators, to drive continuous current motors, or to work an induction coil for x-ray use. The Nodon valve is an application of a peculiar property of aluminium which causes it to resist the passage of a current when it is made the positive pole of an electrolytic cell, while offering little or no resistance when it is the negative pole. Thus, when an alternating current is led into a cell having a suitable liquid as an electrolyte and with one pole of aluminium, while the other is of carbon or some ordinary metal, such as iron in the case of the Nodon valve, the current will be "rectified" by the arrest of those impulses which tend to pass from aluminium to iron, while the impulses passing in the other direction (from iron to aluminium) will meet with slight resistance and the alternating current will be changed into a uni-directional current of an intermittent character. By an ingenious combination of four such cells

properly connected it is possible to utilise both the semi-phases of the alternating current and thus to approximate very closely to a continuous current. The Nodon valve consists of four cells arranged in this way. (Fig. 1.) The cells are

FIG. 1.

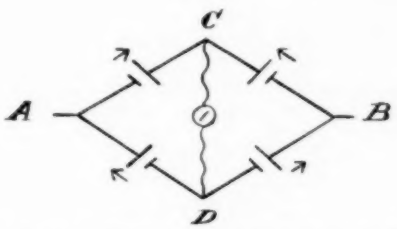


The Nodon Valve.

of sheet iron, the electrolyte is a solution of ammonium phosphate, and the aluminium poles are short rods of aluminium alloyed with zinc. The aluminium poles are inserted into the cells from beneath, as this position allows of a free circulation of the electrolyte for the purpose of cooling the cells in case they tend to become heated during continual use. The four cells are clamped into an oak frame and permanently connected up to a pair of terminals for connecting to the alternating current and to another pair marked positive and negative for drawing off continuous current. A well-made wire resistance is also supplied with the cell for purposes of regulation.

We have tried the Nodon valve continuously for 400 hours and found it perfectly satisfactory. We have also tried it again after leaving it for a fortnight untouched and find that its behaviour is equally good. There is a certain waste of energy in the cell and this is dissipated in the form of heat. On this account the size of cell chosen must depend upon the magnitude of current which will be required. The cell works well at 100 volts; where the pressure is much higher than this it should be reduced by a transformer. There is not much corrosion effect upon either iron or aluminium poles, and it may be presumed that the cell will cost very little for renewals of parts. The iron wastes more than the aluminium. The arrangement of the

FIG. 2.

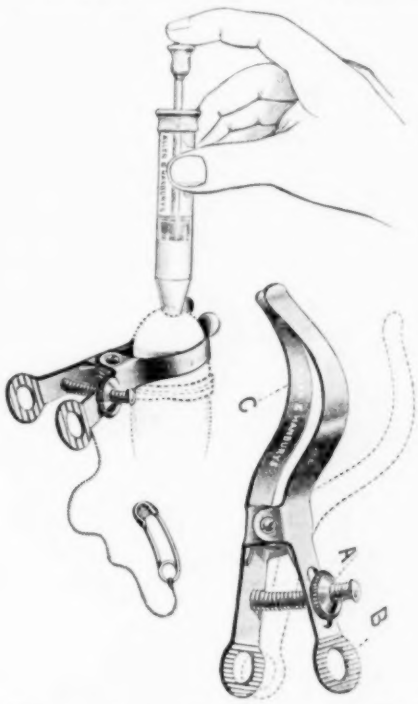



connexions of the group of four cells is shown in Fig. 2. The cells may be regarded as resistances. The alternating current is applied at the points A and B and the direct current drawn off at C and D. A galvanometer is represented between C and D. The arrows show the direction of least resistance (or from iron to aluminium) in the cells. Thus, when the alternating impulse is positive at A the current will flow by A C D B and when the phase is reversed it will flow by B C D A, always, therefore, having one and the same direction between C and D.

## A DEVICE FOR THE MORE RAPID CURE OF URETHRITIS.

THE chief aim of the practitioner in this disease should be to cure before posterior urethritis occurs, a state met with at last in the great majority of cases and often followed by lamentable sequelæ. The early cure of specific urethritis depends on the destruction of the gonococcus, but this cannot be done in the ordinary way without spoiling the mucous membrane, for when discharge appears this microbe is already deep in the tissues and of such vitality that it proliferates amidst the dead remains of associated pus organisms in the presence of agencies which quickly kill the latter. This last fact largely accounts for the false ideas of quick cure which is claimed for various measures—measures usually ineffective in specific cases, merely at best destructive of some surface microbes, or, if drastic, unwisely sealing the exits of elimination of the deeper. The efficacy of remedies, therefore, is more proportionate to the extent they soak into the tissues than to strength, and this holds good even in rebellious chronic glandular urethritis. The value of the so-called "irrigation" treatment, I think, depends on this: the solution is sent into the tissues by the force used. The life processes of the gonococcus require a certain temperature and vascularity wherever placed in tissues. The indications, therefore, are to lessen heat and congestion whilst submitting their cause to the prolonged contact of the local agent.

Personally I do these things very successfully by the constant use of a narrow bandage round the penis wet with




lead lotion, by the frequent use of cold enemata, and by the device figured (inflammation, if severe, being first subdued). This device consists of mechanical fingers which occlude in a self-acting way the urethra where placed. Their pressure is graduated by the nut A, and they are actuated by a concealed spring. No discomfort whatever follows their intelligent use. They are applied over the bandage (not shown)

in the way depicted or whilst the injected fluid is retained in the ordinary way. The clamp is then pinned to the inside of the inside shirt and the patient rests or goes about with that quantity of fluid, and of proper strength which he finds not uncomfortable, distending his anterior urethra. I find that even this part of the urethra is capable of definite absorptive power, in the absence of any fluid passing the urethral sphincter. I am indebted to Mr. Lewis of Messrs. Allen and Hanburys for carrying out my ideas.

JAMES MACMUNN.

Finsbury-pavement, E.C.

## A TONGUE DEPRESSOR FOR EXPOSING THE TONSIL.

THIS instrument is a modification of Jaenicke's tongue depressor. As shown in the illustration, it consists of an angular tongue depressor having on one side a small double blunt hook fixed at right angles to the blade. The instrument is reversible and by having a hook attached to either blade, as shown in the accompanying figure, it can be used for both tonsils. By engaging the hook in the anterior faucial pillar or in the plica triangularis and drawing the same gently forwards and outwards the surface of the tonsil and the opening of the supra-tonsillar fossa can be fully

exposed. As this tongue depressor requires only one hand for its use it leaves the other free for the application of a probe or any other instrument to the tonsil. It may be used with or without cocaine. I have found this instrument of especial use in cases of disease in non-projecting tonsils in adults. It has been made for me by Messrs. Mayer and Meltzer, 71, Great Portland-street, London, W.

Brighton. E. CRESSWELL BABER.

# Looking Back.

FROM

## THE LANCET, *SATURDAY*, APRIL 16, 1825.

### LECTURES
ON THE
### PRINCIPLES AND PRACTICE OF PHYSIC,
BY DR. ARMSTRONG.

*Theatre of Anatomy, Webb Street.*

### LECTURE 21.[1]

Look at nature, and you will find that gout is no more peculiar than inflammation at the end of the nose is peculiar, for that, like the inflammation about the great toe, has generally one common origin—some disturbance in the stomach or bowels; but because some writers, in the dark ages, chose to say it arose from some peculiar and unknown cause, it has been still so considered, even from the time of GALEN, who avowed that gout depended on some peculiar condition of the fluids:—nay, I know of no subject on which common sense, and the common principles of pathology, have been so abandoned as on this, even in some huge modern volumes published on the disorder. If I were to speak from my own observation, then, I would say, that *gout is nothing more than an inflammatory affection which is seated in the structures adjacent to joints, and which is always preceded, or attended, by some disorder of the stomach, liver, or bowels.* You have a right to ask, what is that disorder? and, as I am bound to answer the question, I say, that the disorder is various; sometimes it is merely a slight degree of irritation on the mucous surface of the stomach, what I before explained under the term local simple excitement; but in some cases the irritation is really a low degree of inflammation in that membrane, or a similar condition exists, separately or combinedly, on the same continuous structure of the small intestines. The affection of the liver is, perhaps, mostly congestive, but occasionally attended by an obscure indication of inflammation, as pressure reveals, the bile in both cases being defective or depraved. Generally too there is torpor of the colon, but now and then even irritation on its mucous lining; and the skin is commonly out of order. These affections are sometimes separate, at other times co-existent, as I have before stated; but they invariably precede or attend the external inflammation called gout, which may be considered an effect of the internal affection, and which may be acute, subacute, or chronic. Where it assumes an acute or subacute character, it is sufficient to disturb the whole nervous system, and that disturbance again affects the vascular system, so that the animal heat on the surface and the heart's action become increased, or that state usually termed fever is established; but when the inflammation is chronic it seldom excites fever. This affection arises then from what we call sympathy, but we do not know in what mode precisely, and therefore I merely use the word sympathy to express the fact of the connexion which exists between one part of the body and another, and the knowledge of the fact is of great pathological importance.

[1] Only a portion of the lecture has been transcribed.

## FOREIGN DEPARTMENT.

### ANALYSIS OF FOREIGN MEDICAL JOURNALS.
FROM MAGENDIE'S JOURNAL DE PHYSIOLOGIE.

*Observations on Diabetes Mellitus, by* MM. VAUQUELIN and DE SEGALAS D'ECTHEPARE.[2]

A WOMAN, in her fiftieth year, came to request the advice of Dr. ASSELIN on this complaint, who thought it a fit opportunity to ascertain if *sugar exists in the blood* of persons affected with this disease. In consequence of the inflammatory symptoms having required two large bleedings, the blood drawn was analysed with the most scrupulous attention. It was impossible to discover in it one atom of sugar, notwithstanding the *urine* voided, amounting to nine or ten pints daily, contained a *seventh* of this substance. The saliva also, examined at two different times, left not the slightest trace of it. Urea was proposed as a remedy, and the patient took it for several days; when the urine was again analysed, the quantity of sugar was rather increased.

[2] The details of the different analyses have not been transcribed.

SOME NOVEL PATENTS.—An American inventor has patented what he calls a "bath and fever machine." It consists of a closed box or chamber supported on feet and provided with steam and hot-air pipes leading from an external heating apparatus, "the discharge ends of the pipes being closely disposed to the foot portion of the slatted top and gradually spaced away therefrom towards its top, thereby to cause an increase in the heat from the head of the patient to his feet." A patent has also been obtained for a hog-nose cutter which is described as "an implement for removing the rooting portions of hogs' noses, comprising a pair of handles pivoted together"; further constructional details are then given. Specifications and drawings of both these contrivances will be found in the *Official Gazette* of the United States Patent Office issued on March 17th.

# THE LANCET.

*LONDON: SATURDAY, APRIL 18, 1903.*


## The Limits of Discretion in Dispensing.

THE relations between medical practitioners and pharmacists are important and it is desirable that they should be clearly understood. We are not referring to the vagaries of the "prescribing druggist," but to the difficulties that may arise between the practitioner and the pharmaceutical chemist in their joint endeavour to provide the public with "something to take." At first sight it would seem that there should be no difficulties at all; the former prescribes, the latter makes up the prescription. But certain points suggested by Mr. DONALD MCEWAN in an excellent paper entitled "Limits of Discretion in Dispensing," which was read at a recent meeting of the Pharmaceutical Society of Edinburgh, show the situation not to be so simple. Dispensing difficulties are never-ending and owing to the methods of instruction adopted at the medical schools at the present day in relation to practical pharmacy it is not a matter of surprise that practitioners should sometimes go astray when writing prescriptions. In times gone by, when the system of apprenticeship was in vogue, this difficulty was less generally felt, and owing to the long and intimate acquaintance with the handling of drugs which the pupilage entailed errors were less rare than they are at present. Mr. MCEWAN'S object was to consider what amount of discretion a pharmacist should make use of when a mistake in a prescription is detected. He states in his paper that he himself was brought up in the faith that if it was at all possible a prescription should be dispensed exactly as it was written. We agree with him in thinking that the dispenser ought to act according to this dictum and has no right to do otherwise unless a dangerous combination is formed by the drugs ordered. It is then obviously his duty not to make up the prescription until he has communicated with the prescriber and so learned what ingredients were really intended to be dispensed. But circumstances may arise when this course is impossible and then the dispenser must use his discretion as to whether he will decline to make up the prescription or will adopt such alterations as he deems advisable. He must, of course, assure himself that the revised prescription shall, as far as possible, possess the same therapeutical value as the original. From Mr. MCEWAN'S remarks it is evident that the "limits of discretion" which are indulged in vary widely and the subject is an interesting one for discussion.

Mr. MCEWAN gave many examples of common errors made in the writing of prescriptions which he considers should not be altered by the dispenser. For instance, bismuth subnitrate is frequently prescribed with sodium carbonate. Apparently amongst dispensers considerable divergency of opinion exists as to what action should be taken in such circumstances. Some pharmacists consider that the carbonate of bismuth should be substituted, whilst others are of opinion that the mixture should be so treated that all, or most of, the chemical action which ensues is over before the resulting compound is sent out. We think that both these courses are wrong, agreeing in the matter with Mr MCEWAN. Although the two salts of bismuth are generally considered to be practically identical in their medicinal properties, yet some practitioners believe that the carbonate is the blander and the less astringent of the two. Further, if heat is employed to hasten the action referred to the patient would receive a larger dose of sodium nitrate. It is preferable that the prescription should be dispensed as written or referred to the writer. We may add that it is not a common event for an explosion to occur as the result of the reaction between the bismuth and sodium salts, and besides being rare the explosion, as a rule, only amounts to the blowing out of the cork from the bottle. The question of dosage, again, frequently taxes the dispenser's powers of discretion. Mr. MCEWAN instances the following: "Sodii bromid., 10 grs.; ammon. bromid., 10 grs.; tinct. card. co., 20 min.; syr. aurant., 1 dr.; aq. ad 8 oz. 1 oz. ter die post cib." The difficulty in which the dispenser would be placed in making up this prescription can be easily appreciated. We should feel disposed to think that the practitioner had intended to write directions for one dose only and had then inadvertently made up the mixture to 8 ounces instead of to 1 ounce. Nevertheless, as it is possible that only minute doses of the bromides were designed perhaps Mr. MCEWAN is right in his opinion that there was no justification for interference. It is, however, one of those cases in which the prescriber might well have been communicated with. In consequence of the want of practical dispensary experience on the part of medical students when they pass into actual practice those who wish to prescribe a pill leave the choice of a suitable excipient very often to the discretion of the dispenser. Mr. MCEWAN'S remarks on this subject are instructive. He says that, according to his experience, the course which we have just mentioned is adopted in about 60 per cent. of the prescriptions met with; in about 35 per cent. of the cases a suitable excipient is ordered, but it may be either in excess or slightly deficient; and in 5 per cent. of instances the excipient which is ordered is unsuitable. It must be remembered, however, that in a large number of cases the excipient possesses no therapeutical properties and the choice may, therefore, as a rule, be safely left to the discretion of the dispenser. Mr. MCEWAN says little about poisonous doses being ordered by mistake. It was scarcely necessary to do so, as the course to be followed in such an event is clear—namely, to draw the attention of the prescriber to the amount ordered.

It is obvious that occasionally alterations in prescriptions are absolutely necessary; this being so, if in the exercise of his discretion a dispenser finds it expedient to modify a prescription we deem it highly advisable that the writer of it should be informed of the fact. Serious mistakes in prescriptions are very rare, and the practitioner, far from resenting the interference, is always grateful to the dispenser for any error that is pointed out. The medical man

who is not also grateful to the pharmaceutical chemist for giving him a proper opportunity to repair a slight error is, we hope, rarely met with; and even when there is no error—when the extraordinarily large or small dose has been purposive—the prescriber should remember that the pharmaceutical chemist in referring the prescription back to him is pursuing the safe and proper course in everyone's interest. The dispenser's discretion, however, must be kept within narrow limits and must be exercised only in circumstances which fully justify interference; on his own initiative no important modification should be made. The prime responsibility rests with the prescriber and to him must be relegated the task of making any necessary changes.

## Schools and Physical Training.

THE recently issued report of the Royal Commission on Physical Training (Scotland) lays down in an early paragraph the proposition that "the education cannot be based on sound principles which neglects the training and development of the bodily powers," and proceeds to make various suggestions as to the steps which will be necessary if the educational establishments of Scotland are to become responsible for the physical, as well as for the intellectual, development of the rising generation with any good results. The recommendation that improved means for bodily culture should be adopted is not confined to schools for the humbler classes in the report of the Commission. A special clause deals with higher-class schools and observes that physical exercise should be held to be necessary and should be independent of games, and another in plain terms states that "the condition of physical training at the universities is unsatisfactory." The main part, however, of the report of the Commission has in its contemplation the schools maintained by school boards and other organisations for the education of the younger members of less wealthy classes. The question of insufficient feeding is referred to as demanding attention from school boards and school managers, and it is also advised that "school boards should have the command of medical advice and assistance in the supervision of schools, a systematic record of physical and health statistics should be kept, and a small number of medical and sanitary experts should be added to the inspecting staff under the Education Department."

If the report of the Commission, which has confined its attention to the needs of North Britain in the matter of physical training for the young, can be made to bear fruit through the initiation of a practical system that may serve as a worthy example to the United Kingdom it will have accomplished useful work. The physical condition of our population is not what it might be made and improved sanitary conditions in the schools and homes in which children are brought up cannot enable them to become robust of frame and sound in wind and limb if bodily training is absent or is conducted upon principles not calculated to secure the objects proposed. Unfortunately, a large section of the people of Great Britain, misled by a limited knowledge of what goes on around them, have a vague but firmly implanted idea that the British Islands are the natural home of physical culture and that the athleticism of Great Britain, upon the practice and contemplation of which so large an amount of time and money is expended, is a source of wondering envy to other nations. This is not the case. Britain is not supreme in physical culture because a Leander crew can beat all foreign competitors at Henley or because a third-class English football team can beat a French football team which may lay some sort of claim to represent a considerable section of French football players. Athletics in England have developed too much into gladiatorial displays by picked competitors struggling to win prizes or to earn wages before huge crowds of onlookers and can hardly be regarded as effective agents in the development of the physical strength and physical activity of the people. It is recommended by the Scotch Commission that a skilled committee should prepare, under the auspices of the Education Department, a model course for a national system of physical training for Scotland. Such a committee will have to go far beyond the limits of King EDWARD VII.'s dominions before it will have acquired any knowledge of systems and methods proved by their working results to be worthy of being adopted as national. In no narrow spirit it will have to study the systems of Germany and Switzerland, to take conspicuous examples, and to endeavour to learn how in the latter country pride in individual and collective physical development can gather together in their thousands able-bodied citizens whose object is not to watch the performances of a supremely skilful few but to take active part themselves in combined physical exercises. It may well be asked whether the boasted athletic zeal of our countrymen could ever be stimulated to such displays as these for nominal rewards and with no expectation of individual fame.

The Commission recommends the training of instructors and points out that in many centres of minor importance the special athletic instructor will be impossible and the ordinary school teacher will have to be trained physically as well as intellectually. This may put a severe strain upon the powers of some school teachers and perhaps will diminish the already not superabundant supply. In this recommendation, however, may lie some measure of hope for the success of the movement, for it may mean the introduction of methods likely to bring about the desired end which would be difficult to obtain otherwise. The ordinary physical teacher is wont to be drawn from a class the training of which may be good as far as it goes but is limited almost beyond possibility of expansion. The army sergeant may know his drill to perfection and may have been a skilled instructor of recruits according to the methods laid down in an army "red-book." But the army red-book limits his knowledge and he is not likely to go beyond it. To put the matter more plainly, in the army, where the only system of physical drill extensively used in Great Britain is practised, a course of exercise is laid down which may be excellent in its way but is limited in its scope, limited in its results, and extremely limited in the opportunities which it affords for awakening and retaining the attention and enthusiasm of those instructed in it. We believe that we are right in saying that the systems which are in vogue in Germany and Switzerland, countries which we have taken as examples,

treat the whole matter from a different standpoint. A more or less regular course of exercises may form the foundation of the training at an early period, but the interest is kept up and the physical development of the performers is rendered more general and more capable of universal application by incessant variety in the movements set for their imitation, a variety dependent upon the will and ingenuity of those concerned and not confined by any attempt at codification. Whether after initiating a system of physical training in Great Britain we shall ever succeed in arousing the interest and zeal of those to be trained to a sufficient extent for their instruction to have appreciable results remains to be seen. In order to do it, however, we shall have to proceed in no insular spirit of self-sufficiency, but shall have, if necessary, to borrow and to adapt what is best in the practice of our neighbours, inculcating discipline but avoiding monotomy, and remembering that even more in physical than in mental training the result will depend upon the hearty and sustained goodwill of the learners.

## The Control of Measles.

THE Dover town council has recently had under consideration the desirability of revoking the compulsory notification of measles which is in force in the borough. The proposal to revoke the order applying the provisions of the Notification Act to measles was made by a councillor who had not quite comprehended the situation and we are glad to see that the good sense of the town council as a whole resulted in the withdrawal of the motion. It was contended that the notification fees were practically a waste of the public funds, seeing that the notification had not resulted in what is spoken of as the "stamping out" of this disease. The weakness of the position of the councillor who seconded the motion and who stated that since measles was made notifiable the largest annual number of cases within memory had occurred was promptly detected by another councillor who asked how, without notification, the number in previous years could have been ascertained! As a matter of actual fact, Dr. M. K. ROBINSON, the medical officer of health, presented statistics showing that the number of deaths during the six years preceding notification had been 132, whereas the number for the six years subsequent to that measure had been 64. It seems, therefore, that the expense, which has been under £100 annually, was considered by those who advocated the abandonment of notification too great for this very substantial reduction of the mortality from measles. It appears to us that if every £100 spent by the town council of Dover result in such a saving of life as this it is rendering an admirable account of its stewardship. But the problem of the control of measles is a general and a difficult one and in many places where the notification of measles is in force no such reduction as has occurred at Dover can be detected. We are afraid that there are but few persons who adequately appreciate the fact that in dealing with a disease such as measles we are in presence of a malady which *naturally* varies in prevalence and severity from time to time, and that hence we must not expect what may be termed the systoles and diastoles of the disease to vary in exact response to notification and the measures taken in relation thereto. It would be well if the term "stamping out" were used less frequently by medical officers of health and others. The employment of the term suggests a somewhat imperfect comprehension of the natural history of certain infectious diseases. It would be better were we in most instances to speak of the limitation and control of the disease rather than of its "stamping out."

It is quite clear that without notification no such control is practicable and the extent of such control must largely depend upon the measures which are taken on the information thus brought to the knowledge of the sanitary authority. If it is expected that the mere fact of notification will result in the "stamping out" of disease disappointment is certain, and a similar result is likely to accrue when it is expected that a "part-time" medical officer of health and an unqualified sanitary inspector are to take what are sometimes spoken of as the "consequent" measures. Sanitary authorities thus situated will gain no great benefit from notification. If, on the other hand, the data brought to light are properly handled, and the notified cases are used as indications of the existence of *unrecognised* cases a diminution of the disease *ceteris paribus* should ensue. The fact that measles is probably infectious before the appearance of the rash is obviously an unfortunate element in the problem, but it would be altogether unscientific as well as unstatesmanlike to take up the position that, because there are difficulties in "stamping out" measles, or, we may add, any other disease, therefore this death-dealing agent should be allowed to go entirely uncontrolled. Most of the arguments which can be brought against the notification of measles may also, in a minor degree, be directed against the notification of any other disease, and we should be very sorry to see the sanitary authorities of England, when they recognise this fact, using it as an argument against notification altogether. Let those who are desirous of revoking, without most careful consideration, the notification of measles ask themselves whether they would wish their children when attending our public schools to sit next to a child whose brother or sister might be then suffering from measles at home, and whether he would not regard money as well spent if it would reduce the chances of this occurrence. Obviously, houses from which the disease is notified should be visited at once; the patient must, so far as is practicable, be isolated, the other children excluded from day and Sunday schools, and disinfection practised at the end of the illness.

A measure which would probably increase the utility of notification more than any other would be the education and inspection of the children themselves in our schools. If the children were taught in simple language the nature of infection, and if, moreover, they were periodically examined in the schools the public would begin to appreciate what is the real meaning of preventive medicine. At present we are all of us relying too much upon the *notified* cases of disease rather than using such cases as a clue to the presence of *unrecognised* cases. A notified case is merely the indication that a given medical man has regarded an aggregation of symptoms and signs as constituting in his opinion a case of one of the notifiable disease. It is not part of his duty to search out the unrecognised or suspicious cases; but this is the work which, in connexion with all infectious diseases,

will yield the more abundant harvest. In a word, if *full* use is to be made of the information accruing from notification more work must be done—i.e., more money must be expended. But the fact that sanitary authorities are not at present prepared to do everything which is theoretically indicated should not reduce them to a condition of absolute impotence in relation to diseases. It is in the direction of a cordial and intelligent coöperation between the sanitary and teaching authorities that substantial progress may be expected.

# Annotations.

"Ne quid nimis."

## THE LONDON COUNTY COUNCIL AND THE APPOINTMENT OF OFFICIAL PATHOLOGISTS.

THE following letter from the London County Council has been sent, we are informed, to all the important London hospitals. The reply which has been forwarded by the medical and surgical staff of Guy's Hospital, and which is appended, is worthy of attention.

*From the London County Council to the Secretary of Guy's Hospital.*

County Hall, Spring-gardens, S.W.,
16th March, 1903.

SIR,—The Council considers it desirable that post-mortem examinations in inquest cases of a special nature should be intrusted to specially skilled pathologists.

I have been directed to bring the matter to the notice of the authorities of Guy's Hospital and to express the hope that they will kindly assist the Council in the matter of suggesting with a view to a selection being made the names of well qualified pathologists with experience of a medico-legal nature who are attached to Guy's Hospital and who would be prepared if called upon by any of the London coroners to make post-mortem examinations and to give evidence in special inquest cases. The inclusive fee would be £2 2s.

May I ask you to kindly place this letter before the authorities of the hospital at the earliest opportunity.

I am, Sir, your obedient servant,
(Signed) G. L. GOMME, Clerk of the Council.

*From the Medical Committee of Guy's Hospital to the London County Council.*

April 3rd, 1903.

SIR,—With regard to your letter, dated March 16th, 1903, which was referred by the superintendent of Guy's Hospital to the medical and surgical staff, I have been requested to make the following communications:—

1. That the medical and surgical staff of Guy's Hospital approve of the suggestion of the County Council to provide specially skilled pathologists to undertake post-mortem examinations in inquest cases of a special nature.

2. That they are, however, strongly impressed by the fact that in many cases a safe conclusion as to the cause of death cannot be arrived at from the conditions found post mortem alone and that medical evidence as to the preceding illness is then absolutely essential to a right judgment and should be obtained whenever possible.

3. That it is also obvious that in cases of sudden death or persons found dead the attendance at the post-mortem examination and the evidence at the inquest of the medical man who first sees the corpse may be desirable.

4. That while very willing to afford assistance in the furtherance of the objects of the Council they are of opinion that it is impossible to secure the services of pathologists of the required standard for the fee of two guineas.

I am, Sir, yours truly,
J. H. BRYANT,
Hon. Sec. to the Medical Committee of Guy's Hospital.

G. L. Gomme, Esqre., the Clerk of the County Council.

The medical committee of Guy's Hospital has taken, in our opinion, exactly the right line. No one disputes the great value of skilled pathology in post-mortem examinations, while the necessity in special cases of coroners being able to obtain the best expert assistance is equally evident. But no amount of evidence obtained from post-mortem investigation of a corpse will ever make it possible to dispense with the evidence of the medical man who has seen the patient when alive and can speak as to the facts of the last illness and all its attendant circumstances. This is the error into which Mr. Troutbeck has been betrayed. The objection taken by the medical committee of Guy's Hospital to the meagre fee is one that will be indorsed by all the other hospitals. Expert advice in special cases ought not to be invited upon such terms. The services of pathologists of the required standard cannot be secured for the fee of two guineas.

## RADIUM AND ITS LESSONS.

SCIENTIFIC men will admit the uselessness of continuing a discussion on scientific phenomena in the columns of a public newspaper and, as a glance at the *Times* correspondence on "the mystery of radium" will show, the tendency of the writers has been to tangle rather than to clear the immediate problem presented by the remarkable properties of radium. The columns of a newspaper might just as well be open to a discussion on the nature of electricity, magnetism, or the ether. Such proceedings would give an excellent chance to the *quasi*-scientific public to ventilate its speculations or to scientific men who love polemics and the result would be only to confuse rather than to clear up the issues. Sir William Crookes did well to give the public, however, through the medium of the *Times*, his account of the properties of the mysterious radium, and after that the public should have been content to possess its soul in patience until the careful researches in the laboratory had led, as they are certain to do, to more definite results. The public can never be expected to exhibit the patience of the man of research and unfortunately this impatience often induces the investigator to go further than ascertained facts warrant him in going. We are glad, therefore, to learn that Sir William Crookes declines to continue an argument which would involve him in an exposition of the kinetic theory of gases—"one of the most widely accepted and fruitfully suggestive theories in the whole range of science." "For this task," he adds, he has "neither time nor inclination and must therefore retire and leave its defence to other and more skilful pens." In the meantime the trend of thought seems to be in favour of the view which we expressed in THE LANCET of March 28th, p. 909, that radium would appear to have the power of transmitting energy—picking up, so to speak, certain energies around it in space and presenting them in new shapes in what we know as heat and light. Professor J. D. Everett suggests an interesting analogue to the action of radium which is certainly intelligible. "Is not," he writes in a letter in *Nature* of April 9th, "the generation of radiant energy by radium analogous to the humming of telegraph wires and poles? In each case the emission of energy is a response to surrounding disturbances which elicit no response from bodies in general. The disturbances from which the energy is drawn are irregular movements of the air in one case and of the ether in the other. The responsive power is due to structure which in the one case is on the large, and in the other on the molecular, scale." Sir Oliver Lodge, on the other hand, suggests the theory of the emission of particles. "It is easy to reckon," he says, "that the emission of 1,000,000 heavy atoms per second, which is a small quantity barely weighable, in a moderate time such as a few weeks (being about the twentieth part of a milligramme per century) with a speed equal to one-tenth that of light, would represent an amount of energy equal to 1000 ergs per second—that is to say, would correspond to heat enough to melt a milligramme of ice every hour. And inasmuch as these atoms are not at all of a penetrating kind, but are easily stopped by obstacles, they would most of them be stopped by a small thickness of air and their energy would be thus chiefly expended in the immediate proximity of the source, which source would thereby tend to be kept warm." It is curious to note how abundant are the theories forthcoming, all more or less different, and explaining one and the same phenomenon, and yet which are not scientifically untenable. We certainly appear to be rapidly approaching a new epoch in chemistry and it is tempting and fascinating to think that

we are nearer than ever before towards getting "a glimpse of the nature of things." The discovery of radium has already proved the existence of a fourth condition of matter—radiant matter as Sir William Crookes called it years ago—and now definitely recognised under the name of electrons. It may be asked what limit is there to the number of the conditions of matter? Perhaps the remarkable properties of radium may furnish an answer by-and-by. But we must have patience before all things.

## ON HALLUCINATIONS OF "VOICES" AND DELUSIONS OF "OCCULT INFLUENCE" IN CASES OF INSANITY.

IN the *Journal of Mental Science* for April Mr. Conolly Norman, medical superintendent of the Richmond Asylum, Dublin, contributes an interesting paper on the imaginary "voices" and the delusions of "occult agencies" which affect the insane and attempts to give a rational explanation of the underlying pathological condition to which these manifestations are related. 13 cases are recorded to illustrate various aspects of the subject and a number of important conclusions are reached. In Case 1 the patient was a man, aged 32 years, who had served in the Royal Field Artillery in India for seven years. He had had sunstroke three times and had contracted malaria recently. Early in 1900 he had developed auditory hallucinations of voices which annoyed him by "talking and asking questions." On admission to the Richmond Asylum in February, 1900, he said: "They"—meaning the invisible persecutors whose "voices" tormented him—"can read every thought in my head ..... by a system of telegraphy. ..... The Boers have this power and are able to read our dispatches at a great distance. ..... If I am reading a paper they read it at the same time." He thinks that his persecutors belong to the "Female Hypnotic School" and that their influence over him is due to his having being hypnotised when young. "Even playing draughts they can tell the moves on the board" he is about to make. He regards a bit of wood as containing a piece of glass taken from the eye of a sea-gull and showing a map of the world on it, while the broken fragment of a beer bottle when held in a particular light is said to show "figures of the blind moving about in it and that thereby he knew what was going to happen." He suffers from hallucinations of various senses—visual, tactile, olfactory, and auditory. Of these the last alone appears to be unilateral, since when the "voices" are near he can hear them only through the left ear. The delusions of occult influence—hypnotism, wireless telegraphy, and the reading of his thoughts—are highly evolved. The mystic or occult influences in this case, adds Mr. Norman, have a close resemblance to the sufferings of the victims of witchcraft in olden times. The mystic piece of glass is perhaps a revival of the idea of the magic mirror of the East. The patient also feels as if the same agencies moved his tongue and mouth as though with the intent to make him speak, while his fingers and hands at times also were felt impelled to move as in writing. Mr. Norman regards these phenomena as due to local irritation of the cerebral speech and writing centres in the left hemisphere. In Case 2 the patient, a woman, aged 60 years, had the delusion of two voices being present within her head and answering one another. One of these was like her own voice and said "God bless you" and used pleasant language. The other voice uttered abuses and curses. In Case 3 the patient, a woman, aged 36 years, had hypochondriacal delusions that her "body was drying up" and that she had "lost her inside." She could hear beautiful voices of saints and of nuns proceeding from her chest and epigastrium. They were not external voices like those of ordinary people around her. They came when she was praying and also at other times. When they spoke they seemed to speak through her voice, but the sound was not that of her own voice, and she recognised several voices quite different from her own. Case 6 was that of a man, aged 60 years, who suffered from paranoia of the persecutory form. There were well-marked hallucinations of all the senses—e.g., hallucinations of cutaneous and thermal sensibility, of pain, of the muscular sense, hallucinatory sensations of moisture on the skin (hygric hallucinations), as well as hallucinations referring to visceral, genital, olfactory, gustatory, visual, respiratory, and auditory sensations respectively. The auditory hallucinations referred to voices which were external and heard through the ears and those which were internal and which he described as "working on his breath, going in and out of the mouth." Mr. Norman thinks there must be extensive cortical irritation of the sensory centres in this case and the hallucinatory sensations of suffocation experienced by this patient are looked upon as due to irritation of the kinæsthetic area of the brain. Another patient, an elderly male case of chronic alcoholism, had hallucinations of sight and of being transported through space, bed and all, at night and then brought back. Case 8 was that of a woman, aged 53 years, of temperate habits and with a family history of insanity. She was the subject of mysterious persecutions at the hands of unseen agents who blew dust and noxious odours into her room, forced her to laugh and to cry, poisoned her food, dragged down her abdominal viscera, caused shooting pains and specific sexual sensations about her pelvis, and used to "speak through her throat as through a telephone." Mr. Norman points out that the resemblance to each other of his cases is striking. All exhibit hallucinations of "inner voices" often usurping the place of the natural voice and acting through the patient's vocal organs, while there is almost invariably a delusion that the patient's own body is a machine used by external agencies to communicate wtth others, a form of mental alienation which shows not only that the intellectual processes are disturbed but that the centres of hearing and of speech utterance are also directly subjected to irritation or abnormal excitation.

## STREET TRADING BY CHILDREN.

THE Employment of Children Bill recently introduced into the House of Commons is concerned with a subject of greater significance than its title may at first suggest. It is intended to enable county and borough councils to control and to regulate the employment of children in street trading with reference to their ages, the hours of their employment, and the suitability of their occupations as regarded both from a moral and a physical standpoint. That such a measure is called for there can be no doubt when we consider how many parents pay little or no heed to what they regard as the less practical interests of their children when there comes an opportunity of utilising them to increase the family income. Nevertheless health, education, and moral straightness are, more especially to this class of children, their only guarantees for the after-conduct of an honest and successful life. Parents who realise this—and there are some who do—require no legislative spur or bridle. For the children of those who do not and for the destitute the proposed measure affords a needful assistance. This is a case, moreover, in which responsibility does not rest on the parent only. The well-being of the rising generation is a national asset and as such it is a thing not to be freely exploited in the market. We cannot doubt that in years to come the survivals in the international struggle for existence will be those peoples who can command substantial reserves of bodily and mental energy and aptitude. If we would retain such reserves we must husband and use judiciously, not waste,

our human material, especially in its years of growth. There is no reason why this Bill should interfere with the legitimate requirements of trade. Practically the period of life which it aims at protecting is the school period. On the other hand, it ought to do much good by abating the nuisance of busy idleness which allows too many children to earn an easy penny in the streets when they would be much better employed in learning, or in preparing to learn, some useful trade. For these reasons we regard the Bill introduced by Mr. Akers-Douglas and Mr. Cochrane as a thoroughly humane and useful measure and we trust that it will be approved as such by the legislature. An abstract of the Bill will be found in THE LANCET of April 4th, p. 987.

## CHARITY AND THE LAW.

THE two learned and, to some extent, kindred professions of medicine and law have always adopted widely different positions with regard to the question of doing for the poor without hope of reward that which is done for those in better financial circumstances as a means of earning a livelihood. Thus, the medical student commences his career with a course of work which while it instructs himself benefits the inmates of public hospitals maintained by public charity; the general practitioner gives help to innumerable patients of whom he can say with more or less certainty that they will never pay him for it; and the more eminent surgeon or physician, again, devotes much of his time and talents to the work of a hospital which could not be carried on without his assistance. In the legal profession the position is entirely different. Although to act without a fee is not in all circumstances strictly forbidden legal assistance given for charity's sake is practically unknown and the possibility that kindness may be construed into an attempt at self-advertisement is the plea behind which the lawyer shelters himself when any suggestion is made that his learning or eloquence is at the disposal only of the comparatively prosperous. At the same time the advocate who finds himself cross-examining a medical man does not spare the witness if it is possible to level against him the suggestion that he has given less attention to the poor man than he would have afforded to a richer patient. A solicitor or barrister who on such an occasion can perhaps make a point in his client's favour does so oblivious of the fact that a man enters a profession in order to live by it, and that lawyers have for generations given their assistance and time only in cases where they have had reason to expect remuneration. These observations do not apply to Scotland where in criminal cases of the more serious description a system is in force for the defence of poor prisoners in which solicitors and barristers coöperate with good result. It may also, perhaps, be said that, speaking of legal assistance generally and not of crime only, that the solicitor, being brought more into contact with his client than the barrister, does more than the latter in the way of helping out of kindness those unable to pay him. There is, however, no recognised system in England for affording legal aid to the poor in any way corresponding to the assistance rendered to them by medical men, and, more than this, the legal profession has very strongly set its face against any such aid being rendered by its individual members. It is of interest, therefore, to find apparently emanating from the bar a Bill before the House of Commons, which has already been read a second time, to provide for the defence of poor prisoners, apparently throughout the kingdom, on the lines of the Scotch practice already referred to. It proposes that lists of solicitors should be kept in a manner specified, who may be willing to instruct counsel on behalf of persons committed for trial to quarter sessions and assizes, where these make applications for such aid on the ground of poverty. Counsel are to be instructed according to a rota to be kept by members of the bar attending the sessions or circuit, and both branches of the profession are to do their work gratuitously. The proposed law, in short, appears to render imminent a new departure which may have a far-reaching effect. In the existing circumstances, lawyers will admit, an appreciable number of prisoners are convicted and punished who with legal assistance would be acquitted and some, though, no doubt, not all, of these are probably innocent men. It is not a pleasant thought to reflect that in England in the twentieth century a man's freedom may depend rather upon his possession of a few guineas than upon what he has done or has not done, and a change in such a state of affairs is to be desired, whether it be brought about by the giving of gratuitous aid, or, as would be possible, by legal assistance remunerated out of public funds. The Bill to which we have referred is brought in by a group of well-known lawyers and advocates, members of the House of Commons, but the movement that has led to it appears to have been initiated by a small section of the junior bar at the quarter sessions held in a remote county. Their practice of defending prisoners without fees was held to be reprehensible by their professional brethren from the point of view of the ethics of the bar and the Bill has been introduced in order to meet the difficulty and to legalise the means by which a desirable object may be attained. Medical men may, therefore, before long, have the opportunity of observing a kindred profession confronted for the first time with the possibility of gratuitously assisting its poorer neighbours, a possibility which, as lawyers may safely be assured, can be realised without loss of credit or dignity.

## THE RELATION BETWEEN MENTAL ACTIVITY AND THE CIRCULATION OF THE BLOOD.

PHYSIOLOGICAL experiments have from time to time been made during recent years to determine the relationship between cerebral activity and such bodily conditions as the circulation and the blood pressure, the line of research to which most attention has been given by investigators being the connexion between the emotions and the bodily conditions or processes just alluded to. In the *Psychological Review* for March Dr. Frederick C. Bonser, of Illinois University, has published an account of a lengthy and systematic series of experiments undertaken to determine the vaso-motor, respiratory, and cardiac changes associated with agreeable and disagreeable sensations of elementary character, mainly produced by odours, with mental activity, and with states of mental fatigue. The observations were made with the aid of suitable apparatus on a number of students of the University of Illinois, 12 in number, and the tracings and records obtained included the rate and force of the heart-beats (sphygmometric tracings) and the continuous graphic representation of respiration and the curves of vaso-motor changes shown by the plethysmograph. The results obtained in the various cases were highly constant and concordant. They tended to establish the fact that a definite relation existed between various forms of cerebral and mental activity on the one hand and cardiac, respiratory, and vaso-motor changes on the other. The conclusions reached may be summarised as follows. First, both emotional and intellectual activities were accompanied by changes in the heart-rate and blood pressure in all individuals and by vaso-motor changes in the peripheral vessels in most persons. In general, a frequent pulse accompanied vaso-dilatation and a slow pulse was associated with vaso-constriction. Secondly, there was no constant correspondence between the vaso-motor condition and agreeable or disagreeable sensations. In some subjects agreeable sensations were attended with vaso-constriction and in others

with vaso-dilatation, but why this should be the case could not be answered in the light of present knowledge. Thirdly, intellectual fatigue after prolonged brain work was accompanied by a diminished vaso-motor response to emotional states, and recovery to the normal level of blood pressure was much slower in states of mental fatigue than in conditions of mental freshness. Fourthly, moderately prolonged intellectual activity produced increase of blood pressure, diminution of the pulse-waves in the sphygmometric record, and blunting of the dicrotic notch. In most subjects, after an hour's mental activity, the heart-rate was slightly retarded. Fifthly, in very prolonged intellectual application there was produced a condition of vaso-constriction with heightened blood pressure which persisted for nearly an hour after work had ceased, after which slight vaso-dilatation set in. Sixthly, the Traube-Hering undulations, which represented normal rhythmic periods of vaso-constriction and dilatation, corresponded in conditions of brain activity with fluctuations of sensorial acuity (auditory and visual perceptions), the greatest sensorial acuity being reached just after the maximum of vaso-constriction. Seventhly, the blood-supply of the brain during cerebral activity was regulated by the vaso-motor centre acting through the heart, the splanchnic circulation, and the peripheral systemic circulation, the mode of reaction being such that the circulation of blood through the brain was augmented in states of heightened mental activity.

## THE DISTRIBUTION OF PLAGUE.

THE medical officer of health of the Cape Colony states that for the week ending March 14th 3 cases of plague were discovered at Port Elizabeth—namely, 2 native males (1 of whom was found dead) and 1 native female. These cases were discovered on the following dates—namely, 2 on the 11th and one on the 14th. At the plague hospital, Port Elizabeth, 1 native male patient died; 1 European male and 1 native male were discharged cured during the week, leaving 22 cases still under treatment. Plague-infected rats were found in the town. Dead rats continued to be found in and about the sheds and buildings on the wharves on the east bank at East London. A dead rat was also found in the post-office on the west bank. 1 case of plague was discovered at King William's Town during the week ended the 14th, the patient, a European male, dying on the 10th. 3 cases of plague remained under treatment at the plague hospital. Dead rats continued to be found in the town of Graaff-Reinet during the week. For the week ending March 21st the medical officer of health states that at Port of Table Bay 2 Asiatic male adults were discovered to be suffering from plague on board the s.s. *Nerasa* while in quarantine in Table Bay—namely, 1 on the 15th and 1 on the 16th, the latter dying on the same day. The vessel was sent on the 18th to the quarantine station, Saldanha Bay, where 2 further cases of plague, both Asiatic male adults, occurred on the 19th, 1 of them dying on the 20th. 2 cases of plague remain under treatment in the hospital at the quarantine station, Saldanha Bay. 7 cases of plague were discovered at Port Elizabeth during the week—namely, 6 native males (3 of whom were found dead) and 1 native female also found dead. These cases were discovered on the following dates: 1 on the 17th, 1 on the 18th, 3 on the 19th, and 2 on the 20th. At the plague hospital, Port Elizabeth, 1 native female patient died during the week, leaving 24 cases of plague under treatment. Plague-infected rats were found in the town. 2 native male adults who had been under observation at East London since the 19th and 20th respectively were found to be suffering from plague. No fresh cases of plague were discovered at King William's Town during the week. 3 patients remain under treatment at the plague hospital. Dead rats continued to be found in the town of Graaff-Reinet during the week. As regards Hong-Kong, a telegram from the Governor received at the Colonial Office on April 14th states that for the week ending April 11th there were 25 cases of plague and 22 deaths from the disease.

## THE COAL SMOKE ABATEMENT SOCIETY.

THE fourth annual report of this most useful society is now before us, being the report for the year 1902. During that year the inspectors of the society reported 2470 observations which led to the detection of 1831 nuisances, while 1701 complaints were by the instructions of the committee forwarded to the Corporation of London, the London County Council, and to various borough and district councils. Most of the nuisances were abated upon the receipt of statutory notices from the sanitary authorities, but in 88 instances offenders were summoned and in 72 instances convictions were obtained. Penalties and costs were imposed amounting in all to £201 13*s.* 6*d.* The coöperation of the London County Council and of the borough councils is gratefully acknowledged in the report, but more inspectors and, as a corollary, more funds are needed. We congratulate the society upon the good results of its work; London from its position on the clay in a river valley will always be liable to fogs, but there are no reasons except selfishness and laziness why the fog should not be kept decently clean. The question of the domestic grate still remains to be solved, but even this problem appears to be within reasonable distance of solution.

## PLUMBISM IN PEARL SETTERS: PLUMBISM AND APPENDICITIS.

IT might be thought that all the sources of lead poisoning were well known but from time to time new ones are discovered. At the meeting of the Société Médicale des Hôpitaux of Paris on Feb. 27th M. E. Apert called attention to lead poisoning in those engaged in mounting pearls—an occupation in which it does not appear to have been previously observed. But a more important point in M. Apert's communication is his demonstration of how easy it is to mistake lead colic for appendicitis. The relation between these two conditions is rather complicated. Not only has lead colic been mistaken for appendicitis but, conversely, appendicitis has been mistaken for lead colic. Moreover, lead colic has been followed by appendicitis, probably because lead acts injuriously on the appendix. Some time ago in an annotation we referred to an American case of lead colic in which laparotomy was performed under the impression that the patient was suffering from appendicitis.[1] Later we described a French case of the converse error, in which a painter who had symptoms supposed to be typical of lead colic died from subacute appendicitis, and another case in which an attack of lead colic was followed by appendicitis.[2] In connexion with this annotation Dr. F. de Havilland Hall recorded a case in which a painter with all the symptoms typical of lead colic, bent almost double with the hands pressing on the abdomen, was admitted to hospital.[3] He was treated for lead colic but died from perforative appendicitis. M. Apert related the two following cases. On Feb. 5th, 1903, a boy, aged 15 years, whose occupation was the mounting of pearls, was taken to hospital bent double, compressing his abdomen with his forearms and complaining of acute abdominal pain. In the previous September he had a similar attack which was diagnosed as appendicitis, and he recovered under medical treatment.

[1] THE LANCET, May 20th, 1899, p. 1380.
[2] THE LANCET, July 15th, 1899, p. 171.
[3] THE LANCET, July 29th, 1899, p. 302.

Examination showed that the abdomen was retracted, rigid, and everywhere tender. McBurney's point was not specially tender. The first impression was that he was suffering from general peritonitis from appendicitis. But though the face was pale and expressed acute pain he had not the drawn features, pinched nose, and eyes with dark rings around them of peritonitis. Moreover, the pulse was only 62, full, and tense, and the skin was cool. He could not therefore be suffering from general peritonitis; on the other hand, the abdominal symptoms were too generalised for appendicitis with the inflammation still localised. The attack began on the previous day, when he vomited, and a glycerine enema was given to relieve the pain; but this produced no result and was even retained. The obstinate constipation, abdominal retraction, and evolution of the attack aroused suspicion of lead colic. The occupation of the patient, however, appeared to exclude this condition; nevertheless, the gums showed a distinct blue line. Inquiry showed that in mounting the pearls on gold he used a white paste called *gouache*. When he put on too much of this he was in the habit of removing the excess with his tongue. Analysis showed that the paste contained lead. Under treatment he recovered in a few days. Two other boys were engaged in the same occupation. One did not lick the paste and showed no symptoms of lead colic or appendicitis; the other, a boy, aged 14 years, also licked the paste. At the time the patient was under treatment the younger boy was convalescing from an operation performed for appendicitis in a children's hospital. M. Apert was allowed to examine him and found on his gums an incomplete but definite blue line. He had an attack diagnosed as appendicitis in July, 1902, from which he recovered under medical treatment. Some months later he was readmitted for a second attack. His abnormal pallor, which persisted even after the abdominal pain had been relieved by ice and opium, was noted. An operation was performed after recovery from the second attack. It was most simple and the appendix showed nothing abnormal. But a few days later the abdominal pains inexplicably recurred. Recovery followed.

## THE METROPOLITAN WATER-SUPPLY.

THE Water Examiner's report for February records that during that month the Thames river water at Molesey and Sunbury was in good condition from the 1st to the 26th. On the 27th and 28th its state was bad. The height of the river varied from five inches below to four feet above the average summer level. The information furnished by the engineer to the Chelsea company shows that the rise in the river level took place during the last two days of the month. On the 26th it was four inches below, on the 27th one foot above, and on the 28th four feet above the average summer level. The rainfall at West Molesey during the month was 0·98 inch. The average daily supply delivered from the Thames was 115,608,201 gallons; from the Lee, 44,860,854 gallons; from "springs" and wells, 41,804,021 gallons; and from the Hampstead and Highgate ponds, 238,470 gallons. The average total daily amount delivered was 202,511,546 gallons for a population estimated at 6,457,556, which represents a daily consumption per head of 31·36 gallons. The Chelsea, the Southwark and Vauxhall, and the West Middlesex companies delivered an amount in excess of their supplies of the corresponding month of the previous year, the New River Company delivered the same quantity per individual, and the remaining companies, the East London, the Grand Junction, the Kent, and the Lambeth, supplied less. Of the companies which do not profess to give constant service the Kent rendered a continuous supply to 99·8, the New River to 96 6, the Southwark and Vauxhall to 95·5, and the Lambeth to 78 6 per cent. of their customers respectively. Of specimens of water supplied by the companies it was found that the comparative tint of brown colour varied from four to 40 degrees of the standard in use—an extremely wide range. Dr. T. E. Thorpe, C.B., F.R.S., the analyst appointed by the Local Government Board, made a full examination of one specimen of the water supplied by each of the metropolitan companies on the 9th of the month (a date on which the Thames was not in flood). He found that the average amount of organic impurity in these samples could be numerically represented as follows: Kent, 9; New River, 24; Southwark and Vauxhall, 44; East London, 45; Chelsea, Grand Junction, and Lambeth, 49; and West Middlesex, 55. "All the supplies were clear and of fair quality for the time of year." The water supplied by the New River Company contained only about half as much organic impurity as that which was distributed by the companies which derive their water from the Thames. In regard to the supply given by the East London Company Dr. Thorpe says that on analysing water collected in a district supplied partly from the Thames (at Sunbury) and partly from the wells at Hanworth he found that "the proportion of nitric nitrogen in it was somewhat high." The water supplied by the Kent Company was, as usual, found to be "invariably of excellent quality."

## THE VITAL STATISTICS OF EGYPT.

THE late Dr. Grant Bey of Cairo used to say that the population of Egypt was diminishing at a rapid rate owing in a great measure to the nefarious doings of the midwives, amongst whom craniotomy was a customary practice in parturition. Until recently it was impossible to controvert this *ex parte* statement because the vital statistics which had been introduced by Clot Bey could no longer be depended on. When first established the returns called for by the great Frenchman are said to have been faithfully rendered, but by the time the English first occupied Egypt they had degenerated and become mere instruments for extracting backshish from the long-suffering fellahin. The sanitary officials one and all had come to look upon the registration of births as one of their principal sources of emolument, wealthy parents being in the habit of paying large sums to secure the omission of their sons' names from the conscription lists. One of the first reforms attempted by the reorganised sanitary department had to do with registration and vaccination, but for several years the reformers were seriously hampered by the absence of a trustworthy census, that taken in 1882 during the Arabi disturbances being notoriously incorrect. It was not until 1897 that the finances of the country admitted of a correct census being made, when it was found that the population was greatly in excess of the estimates in nearly every town and in all the districts. Vaccination in 1882 was at an extremely low ebb throughout the country, being not only scantily but also badly carried out. The ordinary mode of transmitting the vaccine was by means of the entire crust from a vaccinifer's arm, blood, pus, and serum being intimately amalgamated and pressed between two pieces of glass. Needless to say that in these circumstances the transmission of diseases other than vaccinia became the rule rather than the exception. From a return which has just been issued by Dr. Engel Bey it appears that in the year 1901 the Egyptian birth-rate for a population of 10,393,687 was 38·5 per 1000 and the death-rate was 20·7 per 1000. These rates refer to natives only. The total number of foreigners resident in the country was 112,447 and amongst them the death-rate amounted to 20·0 per 1000. In a note we are informed that the foreign birth-rate in Egypt cannot be given because the births are only partially declared. Under the capitulations

foreigners are exempted from making the announcement. The total number of native births during the years was 400,812; the primary vaccinations among them amounted to 377,002 and the revaccinations to 6578, the failures in each category being respectively 5463 and 2109. According to these figures only about 4 per cent. of the infant population remained unvaccinated. In Cairo and Alexandria the native mortality was high during the twelvemonth, having amounted respectively to 32·8 and 34·8 per 1000. In the former city the birth-rate was 40·4 and in the latter 37·9 per 1000. The foreign death-rate was only slightly above the average in both cities. On the whole the vital statistics for 1901 indicate a highly satisfactory state of health all over Egypt and effectually dispose of the contention regarding a failing population.

## THE OBJECTIONS TO THE HANSOM.

A CORRESPONDENT writes to us concerning a point which although not exactly medical still has an interest for the medical profession. Our correspondent refers to the inconvenience of the hansom and to the total absence of any light and rapid public carriage and one suited for old and feeble people. The hansom is undoubtedly both inconvenient and risky. If the window is up the conveyance is horribly draughty and to ride with the window down is to sit in a stuffy atmosphere and to court disaster in case of the horse falling, an accident which occurs very frequently owing to the abominable condition in which the roadways generally are. They are often wet and greasy, or if they do get dried by wind and sun the fatuous municipal authorities instead of sweeping up the dust and carrying it away water the sloping sides of the road and at once convert the same into a veritable trap for horses. For an old or feeble person a hansom is difficult to get into or out of. It is astonishing that no cab proprietor thinks of trying some conveyance of the nature of the Paris *fiacre* or the Russian phaeton—that is to say, a light victoria. They are comfortable, they are easy to get into and out of, and if the horse does fall neither the fare nor the driver runs any risk. The London season is approaching and we only hope that some enterprising cab proprietor will cast his bread upon the waters in the shape of a few light victorias; if he does we are sure that he will reap a rich return.

## THE PREVALENCE OF SMALL-POX.

CASES of small-pox continue to be reported from various parts of the country, but mainly in the northern districts. Thus Birmingham, Leeds, Market Harborough, Preston, Grantham, Wigan, and Manchester are all affected. West Hartlepool was reported to be free from the disease on April 7th. In the south cases are reported from Croydon and Eton and in both instances the infection was brought by tramps. In Dublin the health authorities are said to be wide-awake as regards the spread of infection and so far the disease has not spread widely. But at the meeting of the South Dublin Union held on April 8th Dr. F. J. Dunne reported that on April 4th he had examined in the male bath-house of the union a man named William Howard who was suffering from itch and from the effects of a fall. He had been working at the Pigeon House Isolation Hospital. Dr. Dunne's report continued: "He was one of 15 carpenters and several labourers employed by the building contractor there. Howard had not been revaccinated, but made no objection to my revaccinating him. I placed Howard in a ward by himself and ordered him to be completely isolated, to get fresh clothes and have those he was wearing disinfected, and ordered disinfecting baths for him. Immediately after admission he was sent to the isolation sheds where he remains under observation. The time is as yet too short to say whether he will develop small-pox or not. I would wish to call the attention of the board to the fact that the man was working in an infected area, in close proximity to actual cases of virulent infectious disease, from Wednesday, April 1st, to Friday, April 3rd, that he had not been revaccinated, and that he in common with some 22 other workmen was permitted to go backwards and forwards to their homes in the city, and finally, that Howard was enabled to present himself for treatment here and perchance bring small-pox to our 4000 inmates." It was decided to forward a copy of Dr. Dunne's report to Sir Charles Cameron.

## THE CANDLE AND RESPIRATION.

IT is a matter of very common knowledge that when a lighted candle is placed in a confined air space the flame is sooner or later extinguished. Whether, however, this extinction is due to the combustion products of the candle—that is to say, chiefly to the carbonic acid gas—or to the removal of oxygen, has not very long been decided with any degree of certainty. The question is of some importance, since it is generally assumed, and probably rightly so for all practical purposes, that where the combustion of a candle is possible—where it continues to burn—there also is human respiration possible. Hence the simple and valuable, but oftentimes unfortunately neglected, expedient of first lowering a lighted candle into a pit or well to see if it continues to burn before human exploration is decided upon. It may be a source of consolation to some people to know when they are in fear of being suffocated in a railway carriage or railway tunnel, that life is possible so long as the tobacco in a pipe or cigar burns or so long as the smoker is able to keep a match alight. Certain it is that the flame of a candle or of a match goes out when the oxygen is diminished to a point below 17 per cent. It would be impossible to keep a match alight in an atmosphere containing much less oxygen than this. The extinction of the flame, however, is due not to the addition of carbonic acid gas, but to the depletion of oxygen. This is easily proved by the fact that a lighted candle will readily burn in a mixture containing 75 per cent. of carbonic acid gas provided that 25 per cent. of oxygen is present at the same time. The candle test, therefore, may not be an absolutely trustworthy one. Still in most cases the fact of the flame being extinguished would show a deficiency or a complete absence of oxygen and therefore should serve as a warning. It may be pointed out that carbonic acid gas when present in excessive quantities is distinctly poisonous, acting directly and not by merely reducing the normal proportion of oxygen in the air. A mixture of 75 per cent. of carbonic acid gas and 25 per cent. of oxygen in nature is, however, not probable.

## LIVER DULNESS IN PERFORATION OF THE STOMACH.

GREAT difficulty is often experienced in the diagnosis of perforation of the stomach or intestines and many attempts have been made to find some trustworthy sign which would indicate the perforation early and before the advent of general peritonitis had rendered almost valueless any operative procedure. In 1882 Dr. Austin Flint read a paper on Peritonitis before the Medical Society of the State of New York, and in that paper he advanced the opinion that if perforation of the stomach or intestine had occurred there must be some free gas in the peritoneum; some of this gas would form a layer between the anterior surface of the liver and the abdominal wall and percussion would then elicit a tympanitic note over the area where normally the hepatic dulness should be found.

Therefore he claimed that if the normal liver dulness were present it might confidently be assumed that no perforation had occurred, but he also pointed out that the converse will not hold, for the liver dulness might be absent and yet there might be no free gas in the peritoneal cavity, for the ascending and transverse colon might be so greatly distended as to encroach on the area of hepatic dulness. This diagnostic sign was eagerly adopted both in Europe and America, for although the disappearance of the dulness over the liver had been previously noted in cases with free gas in the peritoneal cavity it had not been employed systematically as an aid to the diagnosis of perforation. For some years great reliance was placed on the presence or absence of the liver dulness in cases of suspected perforation and even Dr. Flint's limitation was forgotten and the absence of the dulness was considered as evidence of the presence of free peritoneal gas. This high position in diagnosis is no longer held by this sign; and first it was recognised that the mere fact that no liver dulness was present was absolutely valueless as proof of perforation; and even Dr. Flint's original proposition will no longer hold, for the dulness over the liver may be well marked in spite of the presence of a perforation of the stomach or bowel. Dr. A. W. Mayo Robson and Mr. B. G. A. Moynihan, in their work on the "Diseases of the Stomach," say that when perforation has occurred "liver dulness is then generally absent, but its presence or absence is void of any significance and is unreliable as an aid to diagnosis," and in this opinion will concur the vast majority of those who have had much experience in abdominal cases. In the present issue of THE LANCET, in the "Mirror of Hospital Practice," cases are recorded of perforation of gastric ulcer in which no loss of liver dulness was present. Every practitioner must regret the loss of a diagnostic sign in such obscure cases as some perforations of the stomach or intestine, but it is better to recognise that the sign is quite untrustworthy than to continue to give to it a value which it does not deserve.

## THE SURGICAL TREATMENT OF PUERPERAL PYÆMIA.

THE case of extirpation of a thrombosed ovarian vein recorded by Mr. E. Michels in THE LANCET of April 11th, p. 1025, is one of great interest and importance and he is to be congratulated upon the successful result. It forms a striking confirmation of the fact first pointed out by Professor von Recklinghausen that in post-mortem examinations upon cases of death from puerperal pyæmia, even when weeks or months have elapsed since the onset of the disease, the septic thrombus is found, as a rule, only in the ovarian vein of one side, and this is usually the only vein affected. Further than this, the point of entrance of the poison into the uterus is often found completely healed and the uterus no longer presents any trace of the original lesion. It is especially in such cases that the bold surgical measures adopted by Mr. Michels are likely to be of avail. That there is a fair chance of success from extirpation of the thrombosed veins is shown by the good results following this operation in cases of the same kind in other parts of the body. The whole question of surgical intervention in cases of puerperal infection is still *sub judice* and we may hope by the accumulation of the records of such cases as the one under consideration to be able in time to come to a definite conclusion upon this most important point. That in the great majority of cases of acute septicæmia starting in the uterus the removal of that organ is not likely to cure the patient seems to be established, and this view appeared to be the one adopted by the majority of the speakers who took part in the discussion upon the subject at the International Congress of Gynæcology and Obstetrics held at Rome in September, 1902. Professor Leopold's conclusion that hysterectomy is only justifiable in grave cases of puerperal infection when all other means of treatment have failed and when it is certain that the uterus is the sole source and seat of origin of the infection seems a sound one. Such an indication, as he points out, is most likely to be met with in a case of decomposition of a retained placenta which cannot be removed by the ordinary means. When the poison has passed beyond the uterus and has set up peritonitis, septic thrombosis, involvement of one or both sets of appendages, or an abscess in the wall of the uterus, hysterectomy is not likely to prove of any value. It is interesting to note that the hope which Professor Leopold expressed that the extirpation of veins filled with decomposing thrombi might give good results has been fulfilled in the present case of Mr. Michels. We fear, however, that such success is not likely to follow the efforts of the surgeon in many of these desperate cases. The difficulties with regard to the exact diagnosis, the often grave condition of the patient, and the knowledge that not uncommonly apparently desperate cases of venous septicæmia do well without operation will all tend to discourage too frequent surgical interference. While we doubt if the operation of removal of the uterus in cases of puerperal infection is likely to stand the test of time and further experience, we cannot but think that the removal of the veins containing the septic thrombi, the source of the general pyæmic condition, is destined in the future to become a procedure much more frequently practised, and one likely to lead to as good results in the case of the pelvic organs as it does at the present time in other parts of the body.

## THE FOURTEENTH INTERNATIONAL CONGRESS OF MEDICINE.

THE Fourteenth International Congress of Medicine, which will commence its sittings on Thursday next, April 23rd, at Madrid, is not making a fortunate start. We are asked to give publicity to the following official announcement: "La plus grande partie des congressistes ayant déjà quitté leur pays, le comité exécutif du Congrès a décidé de ne pas envoyer le programme définitif à domicile, mais bien de le distribuer à tous les membres lors de leur arrivée à Madrid." It is quite true that it is now too late for the central Spanish bureau to give the programme of proceedings to many foreign members before they start for Madrid, and this being the case the only thing to be done is to supply the information upon their arrival. But the delay in publishing the programme may seriously affect the fortunes of the Congress; it is idle to disguise this fact.

## ON THE MOBILITY OF THE STOMACH IN HEALTH AND DISEASE.

IN the *Wiener Medicinische Wochenschrift* of March 28th, No. 13, Dr. J. Bendersky of Kiew records his observations on the alteration in the position of the stomach in the abdominal cavity which is associated with various positions of the body and states that he has found the change of the level of its lower margin a sign of considerable value in the diagnosis between gastroptosis and dilated stomach. As might be expected he finds that if a patient in the horizontal position turns on to his side the whole stomach makes a slight movement to the right or the left as the case may be. Comparing the position of the lower margin in the horizontal and vertical positions he finds that in healthy individuals and in those with dilatation of the stomach without gastroptosis the downward movement is very slight and, in fact, almost negligible; while, on the other hand, in cases of gastroptosis the lower margin descends two, three, or four centimetres on assuming the vertical or upright position.

Dr. Bendersky regards this sign as of more value than variations in the upper limit of the stomach, since in some cases this may be actually higher in the vertical position than in the horizontal apart from the greater difficulty of localising it owing to the anatomical relations of the stomach with the left lobe of the liver. It is, of course, the relative position of the stomach at any given time to the abdominal parietes that is of importance in this connexion, since its absolute position must vary with the degree of filling of the stomach and the quantity of gas which it may contain. Dr. Bendersky suggests the obvious explanation that his sign is due to relaxation of the ligaments and peritoneal attachments of the stomach allowing it to descend under the influence of gravitation in the erect position.

## THE AFTER-CARE ASSOCIATION.

THE After-Care Association, of which Princess Christian is the patroness and the Earl of Meath is the president, is the only charity of the kind in the United Kingdom, and the work which it does in assisting poor persons discharged as recovered from asylums for the insane from all parts of the country is deserving of the greatest sympathy and support. The report of the council for the year 1902, which can be obtained from the secretary of the association, Church House, Dean's-yard, Westminster, S.W., for the sum of 3*d.*, is a little document which sets out, not only the great amount of work done by the association during the year, but also the slender resources which it has to fall back on. Money does not reach this praiseworthy society as it should, yet in spite of lack of financial support the annual reports always sound an optimistic note. This spirit of cheerfulness in the face of difficulties is deserving of greater encouragement. The total subscriptions, donations, and contributions for maintenance in 1902 amounted to £772, the largest total ever received in one year, but this increase in receipts is not due in any great measure to an increase of subscribers but to exceptional sources of income which cannot be looked for annually. During the past 12 months 221 cases were before the council and of these 149 were women and 72 were men.

THE meeting of the Hunterian Society held on April 8th, which was devoted to the first three sections of the discussion on the Present Methods of treating Tuberculosis, was largely attended by Fellows and visitors. The second part of the discussion will take place on Wednesday, April 22nd, when the discussion on the three final sections will be held. The subjects and openers of the sections are as follows:—Section 4, Infection, Reinfection, and Multiple Infection, Dr. T. H. Arnold Chaplin; Section 5, the Surgical Aspect, Mr. W. Knight Treves; and Section 6, Suggested Modifications with respect to Comfort, Exercise, Rest, and Recreation, Dr. T. Glover Lyon. The discussion will be held in the theatre of the London Institution, Finsbury-circus, E.C., where a lantern and screen will be available for the exhibition of slides. There will be an exhibition of plans and models of sanatoriums.

THE spring meeting of the South-eastern Division of the Medico-Psychological Association will be held at the Northamptonshire County Asylum, Berrywood, Northampton, on April 23rd, when Dr. George W. Greene will make a communication on an Obscure Case of Intra-thoracic Tumour. After the meeting the members will dine together at the Grand Hotel, Northampton. Particulars as to times of trains will be supplied on application to the honorary secretary of the Association, Herts County Asylum, Hill End, St. Albans.

A DISCUSSION will take place at the Obstetrical Society of London, 20, Hanover-square, W., on Wednesday, June 3rd, at 8 P.M., on Chorion-epithelioma (Deciduoma Malignum). The discussion will be opened by a paper and an epidiascope demonstration by Dr. J. Hammond Teacher of Glasgow. Specimens of the growth, with microscopical sections, will be exhibited at 7.30 P.M. before the meeting. The honorary secretaries will be glad to hear from those who have specimens to show or who wish to take part in the discussion.

AT the spring graduation ceremony of the University of Aberdeen, which was held on April 8th, a number of honorary degrees were conferred, amongst the recipients being Sir Frederick Treves, Bart., K.C.V.O., and Professor Dewar.

AT a recent meeting of the Senate of the University of London it was decided that special subjects for the pass examination in zoology for the degree of B.Sc. should be discontinued after next year.

Dr. J. Lindsay Steven has been elected by the Faculty of Physicians and Surgeons of Glasgow to represent that body on the General Medical Council. Dr. Steven succeeds Sir Hector C. Cameron.

GRADUATION day was held at the University of Edinburgh on April 10th. The address was delivered by Sir William Turner who was recently elected Principal of the University.

## SMALL-POX IN THE WEST INDIES.

IN March, 1902, small-pox was introduced into the island of Barbados by a sailor from a Canadian port. The case was diagnosed and treated at the Pelican Island Hospital and proved fatal. As far as possible those who had been in contact with the patient were isolated and some of them developed small-pox. One of the contacts, however, escaped scrutiny, with the result that an epidemic of small-pox broke out on the island which has since been most strictly quarantined by all the other West Indian colonies. A large number of cases occurred, about 1500 in all, but fortunately the disease was of a mild type and the mortality has been low.

The long period of quarantine has, however, subjected Barbados to great financial hardship. It has been impossible for anyone to leave the colony unless he is going to the United States or England and quarantine has been as rigorously exercised against merchandise as against persons. Hundreds of lightermen, boatmen, and wharfingers have been thrown out of employ; the transhipping station of the Royal Mail Steam Packet Co. has been removed from Barbados to Trinidad; the Canadian steamers have refused all cargo—and Canada is a most important market for Barbados molasses. These rigorous proceedings have not been called for by any neglect on the part of the Barbados Government. The Government has employed extra sanitary inspectors to carry out house-to-house visitations, has built isolation hospitals broadcast, and has made vast preparations for carrying out general and effective vaccination. Up to the present date the expenditure of the colony incurred through the small-pox epidemic has been £16,478, while the loss of revenue through the cessation of all external trade may be estimated at £18,000. The poor Canadian sailor has cost Barbados dear.

And now the question has arisen whether Barbados is the only West Indian colony affected—whether, in fact, the epidemic which under strenuous preventive measures has practically died out in Barbados is not flourishing in Trinidad and has not been introduced thence into other colonies. In the autumn of 1902 it became known that an infectious disease characterised by an eruption was rife in Trinidad. Communications which passed between the governors of Trinidad and Barbados resulted in the despatch of Mr. J. F. E. Bridger from Barbados, *viâ* New York, to Trinidad

to inquire into, and to report upon, the epidemic, which was officially termed in the latter place "chicken-pox." Mr. Bridger, who had been in charge of the small-pox hospital upon Pelican Island during the epidemic in Barbados, entered upon his task in a thoroughly business-like way and came to the conclusion that the epidemic in Trinidad was "small-pox of a very mild type." The medical profession of Trinidad do not accept Mr. Bridger's report as correct. They prefer to regard the eruptive fever as "epidemic varioloid varicella." A meeting of the Trinidad Medical Board which met on March 11th to consider Mr. Bridger's report adopted a resolution to the effect "that no such disease as mild small-pox exists in an epidemic form and that the eruptive fever now prevailing in Trinidad is not small-pox."

In Barbados, however, Mr. Bridger's report has been held as conclusive that the disease in the sister colony is small-pox, and Barbados has now enforced quarantine against Trinidad. There has been reluctance on the part of the Barbados branch of the British Medical Association to pass any formal resolution to the effect that the epidemic in Trinidad is small-pox, as to do so would be to pass a vote of want of confidence in their professional brethren at Trinidad. This attitude we consider right. The Trinidad Medical Board has seen the cases while the medical men in Barbados have only seen the report upon them. But it is quite clear from this report that Mr. Bridger took the only proper and honourable course open to him in speaking his mind and reporting the disease to be what he believed it to be—viz., small-pox. A conclusive inquiry must settle the question and the sooner experts whose views the Colonial Office will be ready to adopt start for the West Indies the better. The epidemic of small-pox in Barbados is subsiding, but the epidemic of the disease which Mr. Bridger says is small-pox, and which other members of the medical profession style chicken-pox or "glass-pox" or some form of varicella is on the increase. The question must be settled, and at once, whether small-pox is prevalent or threatens to become prevalent over the whole of the West Indian colonies, for it must be remembered, as Mr. Bridger has pointed out, that in Trinidad, at any rate up to the date of making his report, no sort of provision against the spread of infection was being taken.

## ASYLUM REPORTS.

*St. Andrew's Hospital for Mental Diseases, Northampton (Annual Report for 1902).*—The average number of patients resident during the year was 399, comprising 191 males and 208 females. The admissions during the year amounted to 96—viz., 41 males and 55 females. Of these 80 were first admissions. Mr. Joseph Bayley, the medical superintendent, states in his report that 10 males and as many females admitted during the year had been under treatment in the hospital on previous occasions. The institution has been very full during the year and a number of cases have been refused admission owing to want of room. The number of patients discharged as recovered during the year amounted to 39—viz., 16 males and 23 females—or 9·8 per cent. of the average number resident. The deaths during the year amounted to 22, or 5·5 per cent. as calculated on the same basis. Of the deaths two each were due to senile decay, cardiac disease, suicide, pulmonary tuberculosis, and cancer of the breast, four each to pneumonia and general paralysis of the insane, and the rest to other causes. The Commissioners in Lunacy state in their report that the hospital and its annexes were found to be maintained in excellent order; that the condition of the sitting-rooms, dormitories, and bedding was excellent; that the dress and personal condition of the patients were neat, tidy, and generally satisfactory; and that the medical case-books were well kept. The committee of management states in its report that the year was a satisfactory one for the hospital, both financially and generally. The farm accounts showed a profit of £267. Charitable assistance was given to the extent of £2622 in maintaining county cases of insanity.

*Barnwood House Hospital for the Insane, Gloucester (Annual Report for 1902).*—The average number of patients resident during the year was 150, comprising 66 males and 84 females. The admissions during the year amounted to 39—viz., 20 males and 19 females. Of these 33 were first admissions. Dr. James Greig Soutar, the medical superintendent, states in his report that among the admissions were 23 cases of acute mania or melancholia which presented good hopes of recovery. As regards the other patients admitted there was, adds Dr. Soutar, little hope of improvement. A history of insanity and allied neuroses was ascertained in the families of 33 per cent. of the patients admitted. "Many of those who come from the same stock as our patients are, however, splendid specimens of sanity, despite a common ancestry and despite circumstances and surroundings in every way identical. There is certainly no inevitableness in the manifest transmission of 'family faults' of the nervous system. We note as a fact that there exists an individual resistiveness to mental disorders which carries through life unscathed many whom heredity and circumstance conspire to involve in disaster." The number of patients discharged as recovered during the year amounted to 20, or 13·33 per cent. of the average number resident. The deaths during the year amounted to 11, or 7·33 per cent. as calculated on the same basis. Of the deaths one each was due to bronchitis, general paralysis, and drowning, three were due to senile decay, and five to cardiac disease. "Many of the acute cases [of insanity] required prolonged rest in bed and medicinal and dietetic treatment suited to their debilitated state," but on the whole the health of the patients and of the members of the staff was good throughout the year. There were no cases of infectious disease. The Commissioners in Lunacy state in their report that the patients were in a satisfactory condition as regards personal neatness, that the institution continued to be maintained in excellent order throughout, and that the medical case-books were carefully kept. The committee of management states in its report that £3146 have been expended in charitable work during the year, as against £2431 in 1901. Seven patients were maintained gratuitously and 92 for payments below their cost of maintenance.

# Public Health and Poor Law.

## LOCAL GOVERNMENT BOARD.

### REPORTS OF MEDICAL OFFICERS OF HEALTH.

*The Metropolitan Borough of Finsbury.* — Dr. George Newman writes an excellent annual report; it is lucid, readable, and scientific. An interesting account is given of the share which was borne by Finsbury in the outbreak of small-pox and it appears that the direct cost of the preventive measures was £342 2*s.* 1*d.* This sum does not include about £12,000, the estimated share of Finsbury in the isolation arrangements of the Metropolitan Asylums Board, or the loss to the ratepayers in the way of business, &c. The notification of varicella during the prevalence of variola seems to have had very useful results in Finsbury and Dr. Newman thinks that it not only brings cases of small-pox to light, but that it leads to greater watchfulness for suspicious rashes of all kinds. As regards diphtheria the opportunities for free bacteriological diagnosis were taken advantage of in 112 suspicious cases, and of this number only 27 yielded positive results. Antitoxin is also supplied by the sanitary authority; the first dose is free and the subsequent doses are furnished at a small cost. For use in a prophylactic sense the antitoxin is supplied gratuitously. Ten cases of enteric fever were attributed to the consumption of shell-fish and Dr. Newman sets out the facts in each case. Unfortunately the precise origin of the molluscs could not be ascertained in every case. A section of the volume before us is devoted to the "protection of the food-supply" and we should be glad to find a similar heading in the annual report of every medical officer of health. In addition to the control of meat and the inspection of dairies and milksheds the subject of butter and condensed milk has received attention, and an interesting account of a successful prosecution for selling condensed milk with 44·74 per cent. of cane sugar is embodied. The premises in which the direct or indirect preparation of food takes place have been visited, and as regards the restaurants and eating-houses of Finsbury Dr. Newman has ascertained that approximately 56,000 persons use these places daily. Some instructive experimental work was carried on in Finsbury during 1902 with regard to the air of underground bakehouses and the results are thus summarised. The air contained (*a*) 14·8 volumes of carbon

dioxide per 10,000 volumes of air, as compared with 4·3 per 10,000 in above-ground bakehouses and 4·3 in the streets of Finsbury; (*b*) between 10 and 24 per cent. less moisture than the outside air; and (*c*) at least four times as many bacteria as the surrounding street air and three times as many bacteria as a typical above-ground bakehouse.

*Paisley Urban District.*—There were four cases of cerebro-spinal fever in this district during 1902. All were attacked about the same time and all ended fatally. No light appears to have been thrown upon the origin of the cases, the nature of which was confirmed by bacteriological examination. Measles is voluntarily notifiable in Paisley, but beyond leaving instructions at invaded houses but little use appears to be made of the information. As Dr. Alexander Robb states, many lives and much suffering might be saved by the exercise of a little common sense.

*Croydon Rural District.*—Mr. C. M. Fegen thinks "that indiscriminate spitting and the want of proper receptacles for the sputum of phthisical people are the reasons why so many people are suffering from consumption at the present time." This statement rather implies that the disease is more prevalent now than heretofore, but we imagine this is hardly the impression which it is intended to convey. Probably pulmonary tuberculosis is decreasing in the Croydon rural district. Mr. Fegen is apparently not in favour of the compulsory notification of this disease, as he thinks that such a measure would be likely to defeat the object in view by leading to the concealment of cases.

*Newton Abbot and Dawlish Urban Districts.*—Dr. H. B. Mapleton reports that among the enteric fever cases which occurred in Newton Abbot during last year three were probably due to the consumption of shell-fish (cockles and mussels) procured from the river Teign. One of two persons who consumed the cockles in question was attacked within a few hours with severe diarrhœa but experienced no further ill effects, while the other person escaped the diarrhœa but later developed a fatal attack of enteric fever. The remaining two cases were probably caused by the consumption of mussels, but we can give no information as to the dates of attack or as to the relation of the mussels to the sewer outfalls. It would be instructive in all cases if these facts were given, as also a statement as to whether the mussels were eaten raw or partially cooked. The voluntary notification of pulmonary tuberculosis has been in force in Dawlish for the last two years but only three cases have been notified.

## VITAL STATISTICS.

### HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8388 births and 4510 deaths were registered during the week ending April 11th. The annual rate of mortality in these towns, which had been 17·0, 16·2, and 15·8 per 1000 in the three preceding weeks, further declined last week to 15·6 per 1000. In London the death-rate was 15·2 per 1000, while it averaged 15·8 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 8·0 in Hornsey, 8·2 in Handsworth, 8·7 in Grimsby, 8·9 in Smethwick, 9·4 in Willesden, 9·5 in Southampton, 9·1 in Burton-on-Trent, and 10·4 in East Ham; the highest rates were 19·7 in Bootle, 19·8 in Middlesbrough, 20·3 in Rochdale, 20·7 in Blackburn, 20·8 in Tynemouth, 20·9 in Rhondda, 22·9 in Swansea, and 24·3 in Wigan. The 4510 deaths in these towns last week included 454 which were referred to the principal infectious diseases, against 493, 489, and 465 in the three preceding weeks; of these 454 deaths 139 resulted from measles, 125 from whooping-cough, 54 from diarrhœa, 53 from diphtheria, 43 from scarlet fever, 32 from "fever" (principally enteric), and eight from small-pox. No death from any of these diseases was registered last week in Southampton, Ipswich, Plymouth, Burton-on-Trent, Kings Norton, Smethwick, Coventry, Grimsby, Warrington, Rochdale, Huddersfield, Halifax, West Hartlepool, Newport (Mon.), or Merthyr Tydfil; while the highest death-rates from the principal infectious diseases were recorded in Tottenham, Northampton, West Bromwich, Wigan, Oldham, Burnley, Rhondda, and Swansea. The greatest proportional mortality from measles occurred in Hornsey, Tottenham, West Ham, Leyton, Northampton, Devonport, Wolverhampton, West Bromwich, Wigan, Manchester, and Swansea; from scarlet fever in Northampton and Burnley; from diphtheria in Northampton, Rhondda, and Swansea; from whooping-cough in Croydon, Willesden, Tottenham, Northampton, Oldham, Rotherham, Tynemouth, and Rhondda; from "fever" in Rhondda; and from diarrhœa in Oldham. Of the eight fatal cases of small-pox registered in these towns last week, two belonged to Liverpool and one each to Croydon, Bristol, Manchester, Blackburn, Bradford, and Leeds. The number of small-pox patients in the Metropolitan Asylums hospitals, which had risen from five to 13 at the end of the six preceding weeks, had further increased to 15 at the end of last week; five new cases were admitted during the week, against two, five, and three in the three preceding weeks. The number of scarlet fever cases in these hospitals and in the London Fever Hospital at the end of the week was 1664, against numbers declining from 1798 to 1735 on the four preceding Saturdays. Influenza was returned as the primary cause of 17 deaths in London last week, against 14, 24, and 17 in the three preceding weeks. The causes of 56, or 1·2 per cent., of the deaths in the 76 large towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Bradford, Leeds, Newcastle-on Tyne, and in 47 other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Aston Manor, Liverpool, St. Helens, Blackburn, Preston, Sheffield, and Gateshead.

### HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 20·1, 18·6, and 18·0 per 1000 in the three preceding weeks, further declined to 17·6 per 1000 during the week ending April 11th, but was 2·0 per 1000 in excess of the mean rate during the same period in the 76 large English towns. Among these Scotch towns the death-rates ranged from 14·9 in Aberdeen and 15·0 in Leith to 20·5 in Edinburgh and 27·9 in Perth. The 578 deaths in these towns last week included 25 which were referred to whooping-cough, 14 to measles, 11 to diarrhœa, eight to "fever," three to scarlet fever, and three to diphtheria, but not one to small-pox. In all 64 deaths resulted from these principal infectious diseases last week, against 68, 77, and 57 in the three preceding weeks. These 64 deaths were equal to an annual rate of 2·0 per 1000, which was 0·4 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of whooping-cough, which had been 32, 37, and 25 in the three preceding weeks, were again 25 last week, and included 12 in Glasgow, seven in Edinburgh, three in Greenock, and two in Paisley. The deaths from measles, which had been eight, 12, and 12 in the three preceding weeks, further rose last week to 14, of which six occurred in Edinburgh, five in Aberdeen, and three in Glasgow. The fatal cases of diarrhœa, which had been 17 and 14 in the two preceding weeks, further declined to 11 last week and included five in Glasgow and two in Dundee. The deaths referred to different forms of "fever," which had been five, five, and four in the three preceding weeks, rose again last week to eight, of which three were registered in Glasgow, two in Dundee, and two in Greenock. The mortality from both scarlet fever and diphtheria was slightly in excess of that recorded in the preceding week. The deaths from diseases of the respiratory organs in these towns, which had been 134, 100, and 121 in the three preceding weeks, declined again last week to 98, and were 90 below the number in the corresponding period of last year. The causes of 21, or nearly 4 per cent., of the deaths in these eight towns last week were not certified.

### HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 27·7, 29·3, and 27·1 per 1000 in the three preceding weeks, further declined to 23·7 per 1000 during the week ending April 11th. During the past four weeks the death-rate has averaged 27·0 per 1000, the rates during the same period being 16·2 in London and 18·9 in Edinburgh. The 172 deaths of persons belonging to Dublin registered during the week under notice showed a decline of 25 from the number in the preceding week and included 16 which were referred to the principal infectious diseases, against eight, 18, and 15 in the three preceding weeks; of these, four resulted from "fever," three from measles, three from diarrhœa, two from diphtheria, two from whooping-cough, one from small-pox, and one from scarlet fever. These 16 deaths

were equal to an annual rate of 2·2 per 1000, the death-rates last week from the same diseases being 1·5 in London and 2·4 in Edinburgh. The deaths from "fever," which had been two, three, and two in the three preceding weeks, rose again last week to four. The fatal cases of diarrhœa, which had been two in each of the two preceding weeks, increased to three last week. The fatal cases of diphtheria, which had been two and six in the two preceding weeks, declined again last week to two. The deaths from whooping-cough, which had been six and two in the two preceding weeks, were again two last week. One fatal case of small-pox has been registered in each of the last three weeks. The 172 deaths in Dublin last week included 35 of children under one year of age and 50 of persons aged 60 years and upwards; the deaths of infants considerably exceeded the number in the preceding week, while those of elderly persons showed a slight decline. Three inquest cases and three deaths from violence were registered, and 68, or nearly two-fifths, of the deaths occurred in public institutions. The causes of eight, or nearly 5 per cent., of the deaths registered in Dublin last week were not certified.

## THE SERVICES.

### ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Her late Majesty's Order in Council of April 1st, 1881—Surgeon Gerald Theodore Sylvester Sichel has been allowed to withdraw from His Majesty's Naval Service with a gratuity.

The following appointments are notified:—Fleet Surgeon A. L. Christie to the *President*, additional, for three months' course of hospital study. Staff Surgeon J. M. France to the *Royal Sovereign*. Surgeons: J. A. Thompson to the *Triton* and A. F. Mackay to the *Research*.

### ROYAL ARMY MEDICAL CORPS.

Major H. A. Haines proceeds from York to Leicester for duty in charge of the Station Hospital. Captain K. Steele, R.A.M.C. (Militia), joins at Woolwich. Lieutenant R. L. Popham has taken over the duties of medical officer in charge of the garrison of Esquimalt. Captain J. P. Silver is ordered to Devonport. Lieutenant-Colonel T. P. Woodhouse takes over charge of the Station Hospital, Western Heights, Dover.

### INSTRUCTION OF IMPERIAL YEOMANRY MEDICAL OFFICERS.

The following is a copy of the regulations issued by the War Office relating to the Instruction of Imperial Yeomanry (Provisional) Medical Officers.

Section VII.—Instruction: 1. Obligatory Courses of Instruction. 180. Before promotion to the rank of surgeon-captain a surgeon-lieutenant will, unless he has held a commission as such in the regular army, be requested to undergo one of the following courses of instruction and obtain a satisfactory report on A. F. E. 535:—(*a*) To attend for fourteen days at the Royal Army Medical Corps Training School, Aldershot; or (*b*) To be attached for fourteen days to the nearest military hospital of not less than 200 beds.

### THE MEDICAL EXAMINATION OF ARMY CANDIDATES.

Our service contemporary, the *Army and Navy Gazette*, deserves the thanks of all the parents and guardians of intending candidates for the Woolwich and Sandhurst examinations for calling their attention to the importance of their ascertaining beforehand what are the physical and medical requirements that have to be fulfilled. If only ordinary precautions were taken in regard to the regulations on this subject a great waste of time and money and much lamentable disappointment to all concerned would be avoided. These regulations are not only published and available for the guidance of everybody but they are so clearly laid down that civil members of the medical profession and medical officers of public schools are not likely to err and if they were only carefully followed we should not hear as we do at present of so many cases of candidates being rejected by medical boards for defective vision and other physical shortcomings manifestly unfitting them for army service. The regulations laying down the physical and medical requirements for the army are, we believe, obtainable on application to the War Office, and a plain and comprehensive article for the guidance of all concerned was published in THE LANCET of Oct. 11th, 1902, p. 1008. It would be well, in our opinion, if the headmasters of public schools and army tutors were to direct the attention of parents and guardians to this subject. This might, at any rate, have the effect of preventing a boy from joining the modern side of a school with a view to being educated for the army when, owing to some physical disqualification, he had little or no chance of being accepted.

### EXPENSES OF OFFICERS OF THE ARMY.

The report of the committee of which Lord Stanley, Financial Secretary to the War Office, was president, appointed to inquire into the nature of the expenses incurred by officers of the army and the possibility of reducing such expenses, has been issued as a Parliamentary paper. The report affects, although it does not specially concern, officers of the Royal Army Medical Corps. The committee appears to have gone pretty fully into the subject. If its scheme of reform is cordially supported by officers of the army for whose benefit it has been devised, and more especially by commanding officers—for that is the main if not the whole root of the matter—it will no doubt go a long way towards rendering a military career in any arm and regiment possible for capable candidates of healthy tastes and moderate incomes. Among the practical recommendations of the committee we may call the attention of the military authorities to those about the needless and irritating expense caused to officers by frequent changes in detail or design of uniform and also, as far as medical officers are concerned, to their frequent moves and changes of station.

## Correspondence.

"Audi alteram partem."

## IS DIPHTHERIA DECLINING IN MALIGNANCY?

*To the Editors of* THE LANCET.

SIRS,—In asking the question, I wish to divest it of all connexion with any particular line of treatment. Is the disease known as diphtheria as fatal in its effects as it was ten or 20 years ago? Personally, I cannot answer for 20 years but I can say that when I first began practice 11 years since the disease was of a severer type than it is to-day. For nine years I have known a certain district in which diphtheria is endemic (and has been endemic for at least 40 years, I am told by an older practitioner than myself). In these nine years I have had experience of several small and three widespread epidemics and each one has declined in severity. The latest one occurred within the past 19 months and was without a fatal case. The patients only numbered 22 and all were under 16 years of age. They may be divided as follows. There were five cases at the beginning of the epidemic which I count as distinctly doubtful diphtheria and in which no bacteriological examination was made. There were four more or less doubtful cases from the clinical standpoint but the specific micro-organism was found in the throat. All the patients got rapidly well. There were ten mild cases, but reckoned as diphtheria by the clinical evidences. The throat was perfectly clean in seven days and in most of the cases much earlier. One mild case (that of a girl aged 13 years) was followed by loss of knee-jerks and paralysis of the muscles of the palate, with return of fluids by the nose. One very severe case (that of a girl aged nine years) had been going on for a week before I saw it and in a very foul atmosphere. The uvula had sloughed away. The child looked as if she would die, but under the influence of cleanliness and careful nursing and feeding she began to recover and in ten days the throat was clean and there was no after-paralysis. One case was that of a baby boy aged one year, with extensive wash-leather membrane covering both tonsils and uvula but with very little constitutional disturbance. The diagnosis was certain, one might have said, from the clinical appearances, but to obviate all mistake I had it confirmed bacteriologically. Ten years ago I am sure a baby with such an extensive membrane would have died or suffered profound constitutional disturbance. In ten days no knee-jerks could be elicited, but whether they had been lost or had never been present is not safe to say in a child so young; otherwise the child made a rapid recovery. Had the epidemic stopped at the first five cases I should not have counted them as diphtheria and had it not been for the confirmatory bacteriological evidence in the four

mild cases and the occurrence of the three severe cases I should have been inclined to believe that I had been dealing with epidemic sore-throat and not the more dangerous disease.

For various reasons antitoxin was not employed in any of the cases. In conclusion, I ask, Is diphtheria becoming more benign? and in private practice are we to meet with epidemics in the future of such a mild type that deaths will be as rare as they are in scarlet fever?

I am, Sirs, yours faithfully,

Leeds, April 11th, 1903. GORDON SHARP.

## THE RETARDED PULSE WAVE IN AORTIC REGURGITATION.

*To the Editors of* THE LANCET.

SIRS,—I have only just seen THE LANCET of April 4th and am obliged to Sir W. H. Broadbent for his good-natured reply (at p. 989) to my note in your issue of March 28th (p. 869). I cannot but think that he modifies his position; for he now says, "When from stenosis associated with the incompetence the violent alternation of the blood pressure which gives rise to the collapsing pulse is obviated the retardation need not occur." My contention is that by whatever means these phenomena are obviated the retardation need not occur. No doubt there is very considerable retardation in selected cases, but the pulse is not "always retarded or delayed." There is some stenosis in my case of March 28th, but there was none in my case published in the *British Medical Journal*, Feb. 16th, 1901.

I should have liked extremely to take a tracing from the case mentioned in the last paragraph of Sir W. H. Broadbent's letter, and no doubt he would like to see my own cases, but I felt that to enter into a clinical argument with Sir W. H. Broadbent might render me absurd in the eyes of many. The only way in which I could engage in an equal conflict was to enter the arena armed with some modern weapon of great precision. I am afraid that even now my missile is not sufficiently penetrative.

I am, Sirs, yours faithfully,

April 9th, 1903. PAUL M. CHAPMAN.

## RECENT ACTS AFFECTING THE COMPENSATION OF WORKMEN FOR INJURY.

*To the Editors of* THE LANCET.

SIRS,—I shall be much obliged if you can spare me space to reply to Mr. W. J. Townsend Barker's letter appearing in THE LANCET of March 21st (p. 834) referring to the above.

Mr. Barker seems greatly grieved that of late years, owing to the passing of the puzzling Workmen's Compensation Act and the somewhat clearer definition thereby of the legal liability of the employer towards the employed, no provision has been made compelling the employer (or the company with whom he insures) to pay the medical fees for attendance on injured workpeople, thus causing the surgeon to fall back upon the poor suffering employé for payment. Mr. Barker evidently does not quite grasp the distinction which exists between legal and moral responsibility as applied to employers of labour and their insurance companies. As a rule, an employer of labour, in order to protect himself against any claims made on him by workpeople who are injured whilst in his employ, transfers to an insurance company to deal with, in consideration of a certain premium, his risk of any accident happening and whilst still primarily liable yet relieves himself of the cost of payment of wages or of any litigation which may arise, together with nearly all the trouble and bother of the case as far as his legal liability is concerned; but naturally in no circumstances would an insurance company undertake to accept his moral responsibility towards his workmen, as it would be virtually and morally impossible to quote any premium which could either cover such a hypothetical quantity or even contemplate the monetary cost of the contingency if it arose.

The employer would be acting strictly within his legal rights in refusing to pay the medical fees for the after attendance on an injured workman providing no agreement existed between himself and the medical man so to do; nor, in fact, would he be liable to pay for the first attendance at the scene of the accident unless he or some responsible person (such as a foreman) in his employ directed that a medical man be summoned to attend; nor could this first-aid service, even if sanctioned by the employer, in the event of the injured man being removed to his home instead of to the hospital, apart from a definite understanding between the employer and the medical man, be held to make the employer liable for any further attendance other than that incurred on the spot at the time of the occurrence. For if this were so, where would a small struggling employer be who was not insured supposing that in a serious long-continued case he was not only held liable for the half wages but also had to pay for the whole of the medical attendance? Why, it would simply end after a time in his going bankrupt and so deprive, not only the medical man of fees, but the injured man and his family, if he had any, of sustenance, causing him to go to the infirmary and his family to the workhouse, there to be an additional burden to the rates, of which tax the medical man would be duly mulcted of his share; all of which trouble and expense to the employer, employé, medical man, and public generally could have been avoided by the aid of insurance in the first place by the employer. It will thus easily be seen that insurance companies (owing to the very small premiums charged to cover employers' risks due to the cutting rates of competitive companies and the non-existence of the tariff system) would be utterly unable to undertake payment of anything other than that imposed upon them by strict legal liability. The main point that should be borne in mind by all parties is that insurance companies are business concerns and not philanthropic institutions. It is not for a minute possible to believe that any insurance company would, as mentioned by Mr. Barker, request a firm not to call in a surgeon to attend to an accident, but to leave the injured man, if able, or his friends, to do so; the proper interpretation of such a communication is more likely to be that the firm in question was merely trying to shield its own mean and uncharitable action, besides shirking its moral obligations, by wilfully and untruthfully putting the blame on the insurance company. What the insurance company probably did say in reply to the question raised by the firm as to who was liable for the medical man's fees was that in the event of its being necessary to have a surgeon to attend at once to the injured man before his removal home or to a hospital the insurance company could not hold itself liable for the medical fees thus incurred, no provision having been made in the Workmen's Compensation Act for any such payment, nor were these expenses either contemplated to be, or included as being, covered by the policy issued to the firm by the insurance company.

Referring to the certificate cited by Mr. Barker as an instance of insult to the profession, in which, in a footnote, the sentence occurs, "The fee for this certificate (if any) to be paid by the injured person," it may be distinctly affirmed that such footnote does not imply, nor was even intended to imply, that a fee charged for it by the medical man is an imposition. It simply states that the injured person is responsible for any fee that may be required for filling it up, which certificate, in the ordinary course of events if the man was in a club, would not be charged for. It is not incumbent on the medical man to fill it up without receiving a fee for so doing, and if the injured man is unable to pay for it, and his employer refuses to, the insurance company, on application, would willingly pay a reasonable fee for it, since the certificate is evidently required to give some definite idea as to the nature of the injuries and probable duration of the disablement. It may be taken that, as a general rule, any medical certificates or examinations referring to the injured men required by the insurance company are duly paid for by them without hesitation, and very rarely indeed does a workman have to bear the cost himself. There is one point in connexion with medical certificates mentioned by Mr. Barker which will certainly appeal with no uncertain voice to, and be heartily reiterated by, insurance companies—viz., "that carelessly filled up certificates are fraught with considerable possibilities of professional discredit" to those members of the medical profession who unfortunately, as experience has taught, are only too prone to regard lightly what ought to be a strict method of procedure in every case. The manager of the firm who forwarded a certificate to Mr. Barker and said that the filled-up form was a necessary preliminary to obtaining from the insurance company the injured man's money was clearly labouring under a misapprehension, or

the insurance company in question has a method peculiarly its own in dealing with that particular branch of claims work and differing materially from most other companies' mode of procedure in the preliminary stages of a claim.

Mr. Barker quotes a case of accident which happened at some works where he had refused to go again, on account of not being paid for a previous attendance by the firm. The result, presumably owing to no other surgeon being available, was that the injured man, who it afterwards appeared had sustained a badly smashed thigh, had to stay nearly two hours on the ground without skilled attention before being at last taken to the hospital in a cab. There was no steadying apparatus applied to keep the fragments of bone in position, probably for a simple reason that any other person than a surgeon would not have diagnosed the exact nature of the injury and its possible results if proper supports were not fixed to the limb. Surely, for humanity's sake alone, this was a case where prompt skilled attention might have saved a fellow-man much excruciating agony, possibly his life, and certainly as events proved later, permanent injury. In reality, instead of, as Mr. Barker states, the insurance companies imposing, or seeking to impose, on the medical profession a new and considerable tax and legal responsibilities without fee or reward, they have proved to be very liberal patrons of the profession and the medical men all over the country have profited very distinctly both in a professional and a pecuniary sense by the passing of the Workmen's Compensation Acts and their application by the insurance companies. No doubt in the near future insurance companies, workmen, employers, and even medical men will be satisfied, for the next Workmen's Compensation Act passed will be based upon the costly experience of the last few years, the various tricky points, subtle distinctions, and troublous ramifications of the present Act being merged into one harmonious whole of the future Act, so that one will be able to look back upon and say in Shakespeare's words:

> "And so by many winding nooks it strays,
> With willing sport to the wild ocean."

I am, Sirs, yours faithfully,

Liverpool, April 6th, 1903. J. DALY RICHARDSON.

*** We publish this letter although the author's remarks upon the medical profession in relation to the giving of certificates show him to be without accurate information. Mr. Barker may have implied that members of the profession are careless in giving certificates, but in our experience this is not the case; while the tax that is sought to be put upon them in this connexion by school boards and other public bodies, employers of labour, sick clubs, &c., is very heavy.—ED. L.

## THE BATTLE OF THE CLUBS IN NEW ZEALAND.

*To the Editors of* THE LANCET.

SIRS,—I inclose a copy of an advertisement which is appearing in the Australian and New Zealand papers. You will doubtless have received a former letter from me in which I told you of our fight with the friendly societies here. Well, this advertisement is the outcome of that dispute, and I want you to warn your readers against accepting such a position. Last evening we had a most united meeting of medical practitioners here and the following resolution was unanimously carried:—

> That the members of the Auckland Section of the New Zealand Branch of the British Medical Association pledge themselves to do all in their power to prevent any medical practitioners from being appointed to the position of surgeon to the United Friendly Societies Dispensary and that they will ostracise any medical man who accepts such a position.

I have only to draw your attention to the following clauses in their conditions to enable you to judge how they wish to sweat the medical profession:—

*Clause 2.*—They must attend professionally when required, either at home or at the dispensary, members, their wives, and children under 18 (children to include stepchildren and adopted children).

*Clause 4.*—They will be required to consult together if necessary, to perform all necessary surgical operations, and when necessary administer chloroform, and in all cases when required vaccinate children of such members.

*Clause 5.*—All drugs, &c., will be supplied by the board.

*Clause 6.*—All instruments are to be supplied by the surgeon.

*Clause 9.*—Salary to be £400 per annum, with fees for attendance on children over 18 years, such fees to be fixed by the board.

*Clause 10.*—They shall be allowed to charge members' wives the sum of £2 2s. for accouchements.

*Clause 11.*—The surgeons shall devote their whole time and attention to the professional duties devolving upon them as the medical officers of such board and shall not be engaged in the practice of their profession other than in accordance with these conditions or such further or other conditions as may from time to time be agreed upon by such practitioners and the said board.

I may further state that I have interviewed the secretary to the dispensary board and he informs me that each surgeon will have to attend about 800 members and their families.

I am, Sirs, yours faithfully,

TRACY R. INGLIS,
Honorary Secretary, Auckland Section, New Zealand Branch, British Medical Association.

Auckland, N.Z., Feb. 19th, 1903.

## URANIUM SALTS IN CANCER.

*To the Editors of* THE LANCET.

SIRS,—You were good enough to publish a letter in THE LANCET of Feb. 14th, p. 476, in which I suggested that uranium was worth a trial in cancer, more especially at the pyloric end of the stomach. Since then Messrs. Burroughs, Wellcome and Co. have succeeded in making salicylate of uranium and this proves to be a reddish powder freely soluble in water. They have also made for me some tabloids of the acetate of uranium, containing one grain in each. My hope is that both these salts will prove less irritating than the nitrate for prolonged use. I have only just begun to try the acetate in a case of cancer too far advanced for operation and it seems to be well tolerated, though doubtless it will take some time to find the most suitable dose. Should it seem to do good I shall then try sterilised injections of the salicylate. I mention the matter at this stage in case others might care to try these salts.

Apart from the action of uranium on the pyloric end of the stomach in animals it would seem to have medicinal possibilities that merit further investigation, for from uranium ore is extracted radium which attracts so much attention. Uranium has also radio-active properties though to a much feebler extent, while from radium to the x rays is but a step. Becquerel has shown that the rays both of uranium and radium can change white phosphorus into red and that the rays of radium destroy the power of germinating in the seed.—I am, Sirs, yours faithfully,

ARTHUR C. WILSON, M.B., Ch.B. Vict.

Formby, April 13th, 1903.

## BLISTERING IN CHRONIC SKIN DISEASES.

*To the Editors of* THE LANCET.

SIRS,—The cases of psoriasis reported by Dr. John Wishart in THE LANCET of April 11th, p. 1030, are of great interest from a therapeutical point of view, since it is by the accurate observation and recording of the minute details of treatment that real progress is made in the healing art. At the same time I should like to point out that although the method adopted by Dr. Wishart is a novel one considered as a separate mode of treatment for this particular disease, yet the principle of employing vesication as a remedial agent in dermatology is by no means new. In 1826 Edward Thompson[1] of Whitehaven recognised the value of applying blisters in those chronic cutaneous disorders accompanied by "low inflammation" and characterised by the heaping up of the epidermis, as in psoriasis, ichthyosis, and pityriasis. He observed that a case of psoriasis of the palms which had resisted both internal remedies and external applications for 18 months readily yielded to two blisters.

Musset[2] in 1854 laid stress upon the importance of destroying the "state of chronicity" in such affections and he considered that the most effective agent for producing this desirable result was the blister. He rather tended to look upon vesication as a means of preparing the way for the better action of other local remedies than possessing curative properties *per se*. If we attempt to explain the *modus operandi* of the blister by supposing that the increased vascularity, and therefore a local leucocytosis, thereby produced acts unfavourably upon the materies morbi of the psoriatic patch, be it microbic or not, we should be equally justified in causing a local inflammation by other means, such as cupping, the application of strong irritants, and so

[1] On the Use of Blisters in Certain Chronic Eruptions of the Skin, London Medical Repository, 1826, vol. iii., p. 57.
[2] L'Union Médicale, Paris, 1854, tome viii., p. 343.

on. When such inflammation proceeds to actual suppuration we may also obtain the same result. Thus Longhurst[3] recorded a case of chronic eczema in the popliteal space of a man, aged 31 years, of eight years' duration which was cured in a month after the development of an acute abscess upon the eczematous area. In this case it is, of course, possible that other factors such as antagonism between the coccigenic organisms and those of eczema may have been at work. The normal blood serum itself, when poured out in increased quantity in response to the local stimulus, may possess inherent antitoxic properties fatal to pathogenic cutaneous microbes, and we know that it certainly is capable of supplying nourishment to the tissues when administered by the mouth. It may by improving the nutrition of the cells of the rete mucosum stimulate these latter to greater activity and so assist them in their production of keratin.

I will not trespass further upon your space by wild and fruitless speculations, beyond mentioning the fact that in the treatment of acne dermatologists have long been accustomed to "abort" an initial papule not by blistering but by the application of pure phenol which will, in company with such agents as chrysarobin and iodine, also abort initial papules of other diseases, such as psoriasis.

I am, Sirs, yours faithfully,

G. NORMAN MEACHEN, M.D., M.R.C.P. Lond.,
Physician to the Skin Department, Tottenham Hospital.

New Cavendish-street, W., April 11th, 1903.

## THE THEORIES OF IMMUNITY.

*To the Editors of* THE LANCET.

SIRS,—Dr. J. M. Fortescue-Brickdale thinks that you have already sufficiently answered my brief letter and that, perhaps, accounts for his proceeding to deal with statements which I never made. He summarises what he supposes me to have said under three headings—i.e. (1) that I had failed to understand Dr. A. S. F. Grünbaum's lectures on the Theories of Immunity; (2) that I believed that other medical men were in a similar plight; (3) that I consider that these theories (*a*) throw no light on the subject of immunity generally and (*b*) are of no use to the average medical man. As regards (1) and (2) I never said anything of the kind. I simply said that I could not see the use of the theories. This being so, is it likely that a reader who failed to understand me would understand Ehrlich or Dr. Grünbaum? I fear not.

As regards (3) I did say so of Ehrlich's theories and Dr. Grünbaum's explanation of them but not of theories of immunity generally. Indeed, I am sometimes conscious of a desire to theorise on the subject myself, when the conviction forces itself upon me that there is something in common between the phenomena of the unfitness of soils for certain crops, the "sickness" of a field for a crop grown on it too long, the production of poisons, or "toxins," by fungi in the soil where they have grown, as in the curious "fairy rings," the power of tolerating large doses of chemical poisons acquired by habitual use, the power of tolerating or resisting the development of infectious diseases and their toxins, and other phenomena by no means limited to the domain of animal life, the mere enumeration of which would occupy considerable space. Dr. Fortescue-Brickdale admits almost all I did say when he says of the theories I condemned that "the nomenclature may be clumsy and often more discordant than the experimental results of the various observers." To anyone who appreciates the proper position of "theory" in scientific work the above criticism is, if true, quite enough to condemn Ehrlich's theory. I quite agree with Dr. Fortescue-Brickdale's remarks as to the desirability of a knowledge of the sciences of bacteriology, chemistry, &c., and the devoting of considerable space in our medical journals to the modern aspects of these sciences; but while allowing that "the best reading is not always the easiest," my experience is that the most difficult is generally the most useless.

Dr. W. E. Henderson tries to drown my "pathetic bleating" in a poetic effusion in order to prevent our "airily dropping our pilot Ehrlich overboard into an unplumbed sea which he is alleged to be navigating by the aid of a too complex and fanciful chart." The offence alleged does not seem to me to justify us in throwing Ehrlich overboard, but I think it is wiser to put a man at the helm who does not use that kind of chart. I have pleasure in joining with Dr. Henderson in testifying indebtedness to you, Sirs, for providing your readers with the admirable lectures which started this discussion. I have no doubt they give a fair account of the theories they deal with as clearly as the theories permit. I cannot, however, say with Dr. Henderson that they have "compelled me to think in new categories." Alas, I must bleat pathetically once more, for I fear I do not "think in categories" at all.

I am quite of Dr. G. Archdall Reid's opinion that real scientific work is badly hindered by the adoption of unsuitable theories. Indeed, theories of the utmost value often lead into endless barren wastes if not severely tested by comparison with material facts. The "ring theory," for instance, in organic chemistry has developed such profusion of links and side-chains, that I, for one, believe that chemical progress is becoming distinctly fettered thereby. At the same time the fact that Ehrlich cannot prove the actual existence of his haptophores, &c., does not of itself condemn the theory. Imagination is of inestimable value in science if used as a scout in front of the regions already occupied by scientific explorers who do not fail to protect themselves by the safe intrenchments of experiment, &c. But imagination has too often proved a will-o'-the-wisp and lured whole generations of scientific workers into quagmires. Some recent bacteriological imaginings seem to me to betray a suspicious phosphorescence, which is more likely to serve the purpose of a will-o'-the-wisp than to provide a safe light for the guidance of miners.

I am, Sirs, yours faithfully,

Welbeck-street, W., April 13th, 1903. HUGH WOODS.

## THE ABORTIVE TREATMENT OF SMALL-POX.

*To the Editors of* THE LANCET.

SIRS,—With reference to a clinical note by Dr. James T. Neech of Halifax on the use of pure carbolic acid in the treatment of small-pox, which note appeared in THE LANCET of Feb. 21st, p. 518, I beg to point out that a combination of pure carbolic acid with sulphate of quinine, taken *internally*, has exactly the same effect in aborting the disease at its various stages without external application of any kind. My experience of this treatment is as follows: in the papular stage the papules entirely disappear or if, at most, one or two become vesicular they quickly dry up. If the disease be treated in the vesicular stage the vesicles dry up without one becoming pustular, whilst in the pustular stage the further production of pus is arrested. No pitting occurs unless treatment be late. The efficacy of the treatment rests entirely with the *combination* of the two drugs, as solutions of neither singly have the same effect. The prescription is: ℞: Acid. carbol. pur. (melted), ♏ iii.; quininæ sulph., gr. iii.; acid. sulph. dil., ♏ v.; glycerini, ♏ x.; aquam ad ℥ i. Ft. mist. One ounce is to be taken every four hours. I should mention that the sudden arrest of the disease, as manifested (in the papular stage) by the entire disappearance of the papules, is apt to be followed by diarrhœa, which, however, is purely eliminative and beneficial and can easily be controlled when desired. In my evidence before the Plague Commission I demonstrated with figures that the internal administration of this combination in slightly increased strength—viz., four drops of the melted acid with four grains of quinine—together with the external application of carbolic oil (1 in 30) to the glands—had resulted in recoveries in 75 per cent. of the cases treated. I must digress to say that where the pure acid has not been available I have found the liquid carbolic acid of the Pharmacopœia (90 per cent.) in the same doses equally efficacious in diseases less severe than plague—e.g., small-pox, puerperal fever, malarial fever, carbuncles, and many other forms of blood poisoning. The symptoms are arrested in the most decisive manner. A small carbuncle subsides to disappearance under the internal circulation of this combination, whilst the largest after four days may be opened and treated surgically as an ordinary abscess, the pus having become entirely liquid. It is an undoubted fact that boils will disappear under the application of pure carbolic acid and I have personally no doubt of its efficacy in small-pox as shown in Dr. Neech's cases, but if the same result can be obtained by the internal use alone of the

[3] Brit. Med. Jour., 1900, vol. ii., p. 1284.

combination of carbolic acid with quinine we are surely getting more directly (through the circulation) at the *cause* than indirectly and more laboriously through the *manifestation* of the disease. In view of the recent epidemics of small-pox in England, I trust the importance of the subject may justify its being brought to the notice of the profession through the medium of your valuable journal.

I am, Sirs, yours faithfully,

L. W. SEYMOUR, M.R.C.S. Eng., L.R.C.P. Lond.

Hyderabad, March 20th, 1903.

## THE ROYAL NAVY MEDICAL SERVICE.

*To the Editors of* THE LANCET.

SIRS,—When the First Lord of the Admiralty visited Haslar Hospital to distribute the prizes gained by the surgeons on the termination of their course of instruction there, in his speech he called attention to some of the advantages of the Naval Medical Service as a career, but I do not think that one half of the great recent improvements are known or appreciated amongst the rising generation in the medical profession and I want to try to call the attention of these gentlemen to the opening which the Naval Medical Service presents, both for their own sakes and because of the great interest I take in the service, where, though retired, my whole heart still is. To those who have sufficient capital at their command to enable them to purchase their way through life or who wish and are able to bid for the higher prizes of the profession I do not appeal, and the fact remains that not all can obtain these latter; in fact, but few can and do. But for the average man the Naval Medical Service offers very many advantages. The pay is very good and the expenses are very small. The social advantages are great: the world is seen in the best circumstances and the life is very healthy and free from cares. There remains, however, the professional side of the question, and on this matter I believe a very great misapprehension exists which deters many from joining the service. There is an idea amongst medical men in civil life that (1) there is no professional work to be done, and (2) that there is no advantage in doing it when there is any. As regards the first: in all the naval hospitals, at home and abroad, the cases are such as are quite up to the cases found in many large civil hospitals; a good number of acute and subacute cases are found in the medical wards, whilst nowadays in all the naval hospitals a great deal of good modern surgery is done, and well done too. (During two years and four months I was in charge of surgical wards in Plymouth Hospital I performed about 140 operations, many of a major character.) The apparatus supplied both on shore and afloat is of the very latest pattern and of the best quality and abundant in quantity.

As regards No. 2. At one time all fared alike as regarded professional attainments and work was not encouraged. Now all this has been changed. Sir Henry Norbury, the present director-general, gives the greatest encouragement to professional services; in fact, they now come first in the list for special promotions and now medical officers are specially promoted for professional merit, thus giving direct encouragement to work. This is the best step ever taken for the benefit of the Naval Medical Service and the Director-General deserves the highest thanks from all naval medical men for this step, though hardly less in importance is that gentlemen who have held "house" appointments in hospitals are allowed to count that time towards their service in the navy. It used to be a drawback to have spent time as a house surgeon before entering the navy as being time "wasted." Now all this is changed and a bid is being made to draw the best men now growing up in the profession to the naval service.

I do hope that many at the metropolitan and provincial hospitals when they read this will weigh well the *pros* and *cons* and if they decide to join the naval service as medical officers I am sure they will never regret it either from a professional, pecuniary, social, or any other point of view. I hope that what I have written may induce many to do so.

I am, Sirs, yours faithfully,

A. G. P. GIPPS,

Bideford, April 12th, 1903. Fleet Surgeon, R.N. (retired).

DONATIONS AND BEQUESTS.—Under the will of Mrs. Mary Fordham, of The Rookery, Royston, Cambridge, £100 are bequeathed to the Royston Cottage Hospital.

## SPECULATION IN SEWERS AT CHELTENHAM.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

(*Concluded from p. 1057.*)

*The Case for the Owners of Private Sewers.—The Bill to Abolish their Privileges.—The Campaign Against and Defeat of the Bill.—The Perpetuation of Privileges and Sanitary Abuses.*

THE argument brought forward by the private owners of sewers is such as to render it useless to seek out some means of effecting a friendly compromise. It is acknowledged that the private sewers, built some 60 or 70 years ago, are now so defective that they cannot be repaired. New sewers with different gradients and of much better construction must be substituted for these old private sewers. But if such new sewers are built by the corporation this would involve an increase of rates, and in that case the householders naturally expect to be relieved from the rent-charge which they now pay for the use of the old defective private sewers. But to this comes the reply that such an expectation is wrong both from the moral and the legal point of view. Mr. James B. Winterbotham in defence of this view cites his own case and says:—

> I live at Pittville. I pay to the corporation a rent charge of £6 6s. a year for my house and garden. Mr. Pitt originally reserved this rent charge in return for the right to use the sewers, roads, and grounds which he laid out at Pittville. By mortgaging this rent-charge, and others like it, he obtained money towards his outlay from the County Bank who afterwards, as mortgagees, sold them to the corporation. The sewers, roads, and grounds have become public, but the rent-charges remain. I also pay my full share in rates, for the public expenditure on roads and sewers in Lansdown and the rest of the town. But I do not complain (1) because I bought my house subject to the rent charge and allowed for it in the price; (2) because my property owes its creation and its past and present residential character and value to the original outlay, made from the money thus obtained by Mr. Pitt, and it is right I shall repay those from whom he borrowed it to the extent to which he legally charged my property.

This means that if a property is bought subject to rent charge for sewers this charge is to be paid in perpetuity even when the sewers in question have ceased to exist. Whatever may be the legal aspect of this postulate it is quite certain that the public will not continue to pay for ever for something which they no longer possess. There are limits to the rights of property. There is the copyright law, for instance, limiting the property rights of authors and publishers. Therefore it was felt that in this case also the legislature must interfere and put a limit to the payment of rent charges for sewers that must be removed. Also from the sanitary point of view it is absolutely necessary to put an end to the existence of a divided authority. The management of all the sewers must be vested in the corporation and private owners cannot be allowed to interfere in any way whatsoever. Consequently, after some abortive negotiations with the private owners, the town clerk advised that an appeal should be made to Parliament. A private Bill was prepared some three years ago, but as there was need of legislation in regard to several other matters these were also included and thus what is called an "omnibus" Bill was drafted. When, however, this scheme was submitted to the town council a great diversity of opinion arose and the matter was abandoned. The discussion had, however, its educational advantage. Then year after year the reports of the medical officer of health, Dr. J. H. Garrett, rendered it more and more evident that this question could not be allowed to remain in abeyance. In his report for the year 1899 Dr. Garrett denounced the sewers "made for profit" in the Lansdown-road and Bath-road district and insisted that they should be "treated in the same drastic way as in other districts," adding: "I have specially advised that one sewer in particular is a likely source of ill health to the occupants of the house close against which it runs and requires immediate removal from that dangerous position." Returning to this question the following year Dr. Garrett pointed out that Section 14 of the Public Health Act, 1875, gave permissive powers to a sanitary authority to purchase privately-owned sewers, but there were no compulsory powers. Nevertheless, acting on this, the principal owner or representative of private sewer-owners was approached. This owner asked for sewers that he thought were in a good condition a sum equal to 20 years' purchase and for those that were undoubtedly in a

bad condition he asked 12½ years' purchase. This was considered too dear.

The next step was to approach the Local Government Board which was asked to grant a Provisional Order facilitating the acquisition of the sewers by the corporation. The corporation, it was suggested, should collect the rent charges for 15 years, after which time they would become extinct. This would pay for the rebuilding of the sewers. The present owners of these private sewers were left to make what claim they chose and the amount of compensation they were to receive would be decided by a court of arbitration. The Local Government Board, after examining the matter, concluded that they had no power to act in the matter. In face of this refusal, and as the work of re-sewering the borough is blocked because no agreement can be concluded with the owners of private sewers, the corporation commenced once again to entertain the idea that an Act of Parliament should be obtained. A new Bill, therefore, was prepared and this time it was approved by a large majority of the Cheltenham town council. There were only six town councillors who were opposed to the measure. Indeed, this second project was also an "omnibus" Bill and therefore dealt with other interests besides those of the owners of sewers "built for profit." It dealt with electric lighting, thus affecting interests connected with gas and gas-fittings. It proposed to facilitate inquiry as to the sources of milk-supply and to control milk suspected of carrying disease. The powers of search for diseased meat were to be extended and private slaughter-houses abolished. Common lodging-houses were to be better controlled and there were various sanitary regulations affecting the building trades. Thus a number of interests other than those of the owners of private sewers were from the very first affected by the Bill. The persons concerned organised a public meeting and are accused of having so "packed" the hall in which it was held that the advocates of the Bill could not get a hearing. A poll of the town was then demanded and this request was granted. Voting papers were distributed and collected five days later. The opponents of the Bill were much more active than its advocates. They did not hesitate to incur a considerable amount of trouble and expense to defeat the Bill. Canvassers went round, particularly among the poorest and most ignorant sections of the community. This was done openly and at least three of the dissentient town councillors took a very active part in this agitation. Thus, when the voting papers came in it was found that in the poorest ward some 800 out of 1000 voters were against the Bill. It is quite evident that the greater part of these voters did not understand the questions at issue.

During the controversy the medical officer of health was often blamed for not remaining neutral. Dr. Garrett replied that he thought that it was his duty to let the people know what was his opinion on such a question. The town council itself is obliged to act on the advice of the medical officer of health, for it has to rely on him for technical information. Nor is this work of education always easy, but often necessitates great patience and persistence. Yet the law requires that the highly technical points of the Bill should be referred to the general public. It is therefore necessary that some of the technical information given to the town council should also be given to the public, since it is the public who by their votes ultimately decide the matter. Consequently Dr. Garrett was encouraged to throw himself into the controversy, but unfortunately in the heat of discussion he described the public meeting which had condemned the Bill as "nothing better than a rabble mob." This he now readily recognises was a blunder. Even if the description had been true it could only embitter the feelings of the opponents and it augmented the energy of their opposition. So much was this the case that at a subsequent meeting a motion was carried calling upon the town council to compel Dr. Garrett to resign his position of medical officer of health. This meeting was convened by a person who had had several notices served upon him from the sanitary department. The proposer of the motion was a leader of the anti-vaccination party. An active medical officer of health must inevitably have a large number of opponents of this description and therefore he should weigh his words carefully and not allow class feelings and prejudices to get the better of his discretion. It was a decided mistake to qualify a meeting at which there were some town councillors and many voters as a rabble mob because the majority present came from the poorer quarters of the town and did not understand the technicalities at issue. So the motion condemning the medical officer of health was carried and had to be submitted to the town council. But this was done merely as a matter of form. The town council could not blame their medical officer of health for advocating that which they had approved by an overwhelming majority. The triennial appointment, also, of the medical officer of health had been converted a few years before into a permanent appointment. This incident shows how important it is that those who are the guardians of the public health should be independent of local personal interests. A medical officer of health is constantly obliged to take action against individuals and Dr. Garrett can recall the time when four-fifths of the members of the town council had had notices served upon them to abate nuisances or otherwise to conform with the sanitary laws and by-laws. This, of course, did not add to Dr. Garrett's popularity at the moment.

The butchers in the town were also very determined in their opposition to the Bill. There is a public abattoir at Cheltenham, but when it was built only some of the private slaughter-houses were done away with. In 1896 there was a provisional order issued, which was too weak for practical purposes as it only gave power to close a slaughter-house under certain restricted conditions. Those private slaughter-houses that were allowed to remain acquired from that fact an enhanced value. The right to close a slaughter-house depends upon its situation and construction being such as to prove injurious to public health. This proviso, it will be seen, takes no cognisance whatsoever of the difficulties of inspecting meat. The town council did try to close one private slaughter-house and the value of the freehold was set down at £100, but the owner, swelling his claim on the ground of compensation for disturbance, demanded £600. The town had to give £200 and thus paid twice the value of their purchase. Under an old Act the slaughter-houses are registered in perpetuity. Whatever changes and improvement time may bring, the butchers were to be allowed to continue slaughtering as there forefathers had done. To abolish all this it was proposed that Parliament should give the town council power to close any and all private slaughter-houses as soon as sufficient accommodation had been provided at the public slaughter-house. In no case was the compensation to be given to exceed twelve times the annual cost, or twelve times what the butcher would have to pay for killing the same amount of cattle, &c., at the public slaughter-house. These provisos set the butchers against the Bill. Then, as is usually the case, the fear arose that improved drainage would mean an augmentation in the rates. Thus it has come about that the poll of the town went decidedly against the Bill. Consequently it has been withdrawn from Parliament and now the question is at a deadlock. The only hope apparently is that of sacrificing several Jonahs. In other words, another Bill must be drawn up of more modest dimensions, dealing with fewer topics and therefore exciting less opposition, but insisting, of course, that the private ownership of sewers should be abolished. Still, it will take some time to bring this about and in the meanwhile the reputation of Cheltenham will continue to suffer.

Of course, loud protests are made that in spite of these difficulties Cheltenham is a very healthy town. The death-rate for the year 1902 amounted only to 14·3 per 1000 and two years ago it was only 14·0 per 1000. The average death-rate, however, for the ten years 1890 to 1900 was 16·3 and the birth rate only 21·4 per 1000. When the local social conditions are taken into consideration it is quite evident that these figures show that there is room for improvement. Cheltenham is a residential town with a very wealthy population. It has new broad streets, houses surrounded by gardens, and there are many open spaces. Nor are there any unwholesome industries, mills, or mines to injure the health of the population. Therefore, considering the small proportion of infants and young children present, the vital statistics might be more favourable. When the grossly defective private sewers are abolished, when the town is properly drained, when the food-supply—especially the milk and the meat—is more effectively inspected, there will be a still lower death-rate and less sickness. It is to be hoped, therefore, that the town council will not lose heart because their Bill has been thrown out by the poll of the ratepayers, but that, on the contrary, they will persist. The present anomalous and dangerous state of affairs cannot

be allowed to continue. The town of Cheltenham cannot afford to compromise its reputation in such a manner. Its system of drainage must promptly be altered so that it may be equally good in all parts of the town.

## NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

*Pay of Officers of the Royal Army Medical Corps in India.—The Crusade against Malaria-bearing Mosquitoes.—The Plague Epidemic.—Bites of Rabid Animals.—The Report of the Dufferin Fund.*

IT will be remembered that the concessions in the matter of pay and allowances recently announced for officers of the Royal Army Medical Corps in India concerned only the junior ranks. Now, however, the Government of India, with the sanction of the Secretary of State, has decided that the pay of lieutenant-colonels and selected lieutenant-colonels should be increased to Rs. 1150 and Rs. 1250 respectively per mensem to take effect from Nov. 14th, 1902.

With the idea of attracting private enterprise as well as extra official work for the extermination of malaria-bearing mosquitoes the Government of Bombay has decided to offer four prizes—Rs. 400, Rs. 300, Rs. 200, and Rs. 100—for one year's observation on the distribution and habits of mosquitoes in some of the towns and villages. The Government of India expressed a wish that measures should be organised by private enterprise but it was felt that until it was known which of the varieties of mosquito were the active agents in the different districts it was a waste of energy and ill-directed work to employ the usual methods for extermination indiscriminately. A village in the Karnool district of the Madras Presidency has earned an unenviable notoriety for malarial fever and the president of the district board has sanctioned Rs. 500 for carrying out experiments. The sanitary commissioner has drawn up a scheme which includes the filling up of the numerous stagnant pools, especially those in the bed of the river, the drainage of the gardens, and the provision of quinine gratis and systematically to all families (and to arrange that they actually take it). A list of all persons suffering from fever is first to be made by a house-to-house visitation. All pools which cannot be drained will be treated with kerosene once a week.

The mortality from plague continues extraordinarily high throughout India. Last week 29,236 deaths were reported, of which the Bombay Presidency returned 6666, the Punjab 8514, Bengal 4447, and the United Provinces 4419. While the outbreak this season is declining in the Bombay districts it is increasing elsewhere. In Bombay city there were 1274 deaths from plague, an increase of 258, and in Calcutta 751 deaths were recorded. Nagpore city is seriously affected and so also is Jubbulpore. The disease is also raging severely in Berar. In Central India the Indore and Ratlam States have been attacked and Rajputana is begining to suffer. The infection has steadily advanced northwards during the past season and its present ravages in the Punjab and the United Provinces show that it has lost none of its virulence in Upper India.

Some valuable hints are given in the second annual report of the Pasteur Institute at Kasauli. With reference to "first-aid" for a bite by a rabid animal the first essential is cauterisation as soon as possible. For this pure carbolic acid is the best and least painful application. It should be swabbed into the wound and then washed out immediately afterwards to prevent too much destruction of the tissues. Crude phenyl also does well. It is said that cauterisation if thoroughly carried out within a few minutes of the infliction of the bite will prevent the subsequent onset of hydrophobia in many cases but not in all. Major D. Semple, R.A.M.C., does not approve of sucking or excising the wound or of putting on a ligature above it. The very earliest period at which a man or animal bitten by a rabid animal could possibly show any symptoms of hydrophobia or rabies would be 14 days, but it is far more likely to be three weeks or longer. It is important to bear in mind that the appearance of a bite and its disposition to heal or otherwise are no index whatever as to whether it was inflicted by a rabid animal or not. Bites on the head and face or deep and multiple bites elsewhere, especially where nerves are plentiful, must always be looked upon as especially serious. Cases of this kind require vigorous and early treatment.

The report of the Dufferin Fund for the year 1902 shows a steady increase in the number of females seeking relief at the various women's hospitals and dispensaries. There are 39 medical women of the first grade—i.e., qualified for registration in the United Kingdom—and 75 assistant surgeons of the second grade—i.e., of those who have been trained in India and hold Indian qualifications. There are in addition third-grade assistant surgeons and trained midwives. In Madras Province alone 71 European and Eurasian trained midwives and 396 trained native women were practising. The central committee admits that it is not new hospitals which are now wanted so much as a wider education of hospital assistant nurses and midwives in order to carry relief into the outlying districts and villages.

March 28th.

## BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

*Resignation of Dr. Alfred Hill, Medical Officer of Health.*

AT the meeting of the city council held on April 1st a letter was read from Dr. Alfred Hill in which he says: "After 53 years of public official life in Birmingham, 43 of which I have had the honour to spend in the service of your council, I have come to the conclusion that the time has arrived when I may justifiably put off the cares and responsibilities of office with the hope of enjoying a brief period of rest and leisure." Dr. Hill's resignation is to take effect upon June 30th. During his period of office Birmingham has grown enormously, large districts having been included in the city which were outside its boundary when he first took up the duties which he is now relinquishing. The council has instructed the health committee to report its recommendations as to the terms on which the vacancy should be filled up. There will, no doubt, be a large number of candidates for so important a position. Dr. E. H. Snell, medical officer of health of the sister city of Coventry, has already announced his candidature. Dr. Snell, who was educated in Birmingham, was medical officer to the London County Council for the Blackwall Tunnel before occupying his present position. Whilst engaged in the duties of this post he published an important work on Compressed-air Disease. Whoever may be successful in obtaining the appointment of medical officer of health will find a vast field of work ready to his hand in connexion with the Birmingham slum districts.

*Overcrowded Areas.*

Much attention has of late been called to the insanitary and overcrowded districts by the debates in the council in connexion with the rehousing of the poor which have arisen upon the reports submitted by the corporation committee intrusted with that subject. A pamphlet has just been issued by Mr. H. Bagster Wilson, of the Medical Mission, and Mr. G. B. Wilson, entitled "Drawn unto Death," in which a vast number of facts have been collected relating to a specially crowded area around Floodgate-street. Containing about 76 acres this locality has a population of 6943 persons, for whom are provided 45 houses licensed for the sale of intoxicating drinks—that is to say, one to every 88 adults 18 years of age and upwards. This area contains many back-to-back houses where through ventilation is impossible. With respect to the overcrowding in this area the following facts speak volumes. 101 persons live in 48 single-room tenements—i.e., more than two persons to a room: 567 persons live in 170 two-room tenements—assuming that both rooms are used as bedrooms as well as living rooms, there are 1·7 persons per room, or if only one be used as bedroom then more than three persons per room. 3985 persons live in 837 three-room tenements—i.e., reserving one room for living room, 2·37 persons per room. In these cases the second bedroom is generally a very small room. 705 persons live in 120 four-room tenements and 1585 persons live in 258 five (or more) room tenements. In other words, 4653 persons sleep in 1892 rooms—i.e., 2·46 persons per room. This is the *average*; of course, in many instances the number of persons per room far exceeds 2·46. From measurements made at various times it appears that in the cheap three-room tenements two bedrooms generally contain from 1000 to 2000

cubic feet. The allowance in lodging-houses is 300 cubic feet to each adult, two children under ten years of age counting as one adult. During 1902, 62 children were clothed by the Police Aided Association for Clothing Destitute Children and 150 free breakfasts and 80 free dinners were given daily at the Floodgate-street Board School, at which 25 per cent. of the children are without proper shoes and clothing. During the same year 224 residents in the area died, of whom over 70 died in public institutions of the city—a death-rate of 32 per 1000 for this area, as against 18 per 1000 for the whole of Birmingham. Of the 224 deaths at least 58 were of infants under 12 months, giving a death-rate of 252 per 1000 births, as compared with 157 per 1000 for the city during the same period.

*Recent Appointments.*

The two vacancies alluded to in my last letter have just been filled up. To the post of assistant obstetric officer to the General Hospital Dr. J. T. Hewetson has been elected. Dr. Hewetson is an assistant curator of the pathological museum in the University and has published some interesting papers on gynæcological subjects. Dr. Walter Ross Jordan has been appointed to the position of physician to the workhouse infirmary, recently vacated by Dr. Thomas Wilson.

*Death of Mr. Edwin Chesshire, F.R.C.S.*

Although he has not of late been engaged in practice in Birmingham and has resided for some time out of the city, the death of Mr. Chesshire severs a link with the medical profession of the past. Mr. Chesshire was born in Edgbaston in 1819 and commenced practice in Birmingham in 1837. He took up the subject of eye surgery and was attached to the Eye Hospital when it was situated in Steelhouse-lane. He was largely instrumental in securing for the hospital the premises of the "Old Royal" Hotel in Temple-row, where its work was carried on until the erection of the present building in Church-street. Besides his work in connexion with this hospital Mr. Chesshire took a great interest in problems connected with the sewerage of the city and contributed many letters on the subject to the columns of the local press. One of his sons, Mr. Frank Chesshire, died on the same day as his father. Another son is surgeon to the Wolverhampton Eye Infirmary, and one of his daughters is married to Dr. Henry Malet, medical officer of health of Wolverhampton.

*The Notification of Small-pox.*

Some dissatisfaction is felt by the practitioners of the city at the refusal of the health committee to accept their diagnosis of cases of small-pox without verification by a second opinion—in this case by an official of the corporation. When the health authorities first started sending round their "inspector of diagnoses," he visited the patients of the local medical men without their knowledge or consent. This was, of course, a wholly indefensible procedure and a slight modification has been made, for he now calls on the medical man whose case he is to report upon and invites him to be present at the consultation. This plan, which is the converse of that usually adopted in cases of consultations, is also resented by the medical practitioners who contend that the consultant forced upon them is a gentleman in whose selection they have had no voice and to whose decision they must unreservedly submit. What they contend is that such consultations should only take place at the request of the practitioner in attendance and they point out that if attending a doubtful case they are not compelled by law to notify it until symptoms have declared themselves which enable a certain diagnosis to be arrived at. The health authorities can hardly be blamed for any efforts which they may make in attempting to avert the plague of small-pox from the city; but from every point of view it is of the utmost importance that their regulations should meet with the approval and support of the local practitioners by the aid of whom the authorities can best hope to succeed in the object which they have in view. A recent case which has occurred in a neighbouring town shows—if at this time of day any demonstration is necessary—how important an early diagnosis is. In this case a certain boy was taken to a medical man on Feb. 9th with—so his mother states—an eruption on his legs, arms, and face. The medical man considered that he was suffering from a cold and has since stated that he was not then affected with small-pox unless in the incubation stage. There is some dispute as to whether he was taken again to see the medical man a week later, but at any rate it was not until the 23rd of the month that he was actually notified as suffering from small-pox. Since his attack 13 persons in the same street have been the victims of small-pox and amongst these one has died. According to the chairman of the sanitary committee the boy was the source of infection in all these cases.

April 14th.

## LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

*The Sanatorium at Delamere Forest in connexion with the Hospital for Consumption.*

THE medical report of the work at the sanatorium stated that during the past year 125 cases had been treated. Out of that number 74 were greatly benefited and with healthy environment and careful life there was every reason to hope that they would continue to do well. Experience pointed to the fact that the treatment was satisfactory in almost all instances with those patients who came in the earlier stages of phthisis. On the other hand, the officials were unquestionably severely handicapped with the more advanced cases which came to the sanatorium. They could in many instances benefit such cases, but it was in this class that most of the failures and relapses occurred. In the sanatorium treatment if they were doing nothing more than educating the patients, and through them public opinion, to the fact that to a great extent consumption was both a preventable and, up to a certain point, a curable disease, they would be doing a great and a necessary educational work and one which must sooner or later assert itself to the public mind. The report marked the first complete year of working of the sanatorium branch of the Hospital for Consumption.

*Appointment for Professor A. M. Paterson.*

Dr. A. M. Paterson, professor of anatomy at University College, Liverpool, has been appointed Hunterian lecturer at the Royal College of Surgeons of England.

*Liverpool School of Tropical Medicine: Annual Report.*

In its fourth annual report the committee of the School of Tropical Medicine stated that the school had progressed steadily and accomplished a large amount of work, the result of which, it was hoped, would eventually help to improve the conditions of life for all who live in tropical countries. After reference to the honour of a K.C.M.G. conferred on Sir Alfred Jones, the chairman; of a C.B. on Major Ross, F.R.S.; and to the fact that Professor Rubert W. Boyce had been made a Fellow of the Royal Society and that Major Ross had been awarded the Nobel prize for medicine, the committee mentioned the founding of the chair of tropical medicine "to commemorate the valuable services rendered to the school by its originator and chairman, Sir Alfred Jones," to which Major Ross had been appointed. The report gave the results of the 11 expeditions organised by the school to tropical countries to battle with the mosquito. Negotiations have been in progress for the despatch of an expedition to the Congo Free State, and the committee has arranged to send Dr. J. E. Dutton and Dr. Todd on a special mission to Leopoldville on the termination of their investigations on trypanosomiasis in the Gambia and French Senegal. Other expeditions are also in contemplation. Arrangements have been made for the delivery of elementary lectures on tropical diseases and sanitation to employés of firms in Liverpool and district proceeding to the tropics. Thousands of copies of sanitary instructions have been issued. The committee refers with satisfaction to the willing and efficient manner in which the medical staff have performed their arduous duties.

*Small-pox in Liverpool: a Gradual Decrease.*

Dr. E. W. Hope, the medical officer of health, reported that 62 fresh cases of small-pox were notified during the week ending April 9th, as against 68 in the previous week and 86 on March 26th. There were 303 cases in hospital, which marked a diminution of 40 as compared with the numbers in hospital at the end of March. There had been six deaths during the past week. The chairman of the health committee said they could congratulate themselves that the number of cases in hospital was diminishing. It was more satisfactory that the disease should decrease gradually than that it should go down by leaps and bounds. In a large number of cases the disease had assumed a mild type.

April 14th.

## MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

*Jubilee of the Manchester Free Libraries.*

ON April 2nd and 3rd the Jubilee of the Manchester Free Libraries was celebrated, although strictly it should have been held last year, the first municipal free library having been opened in 1852 in the presence of many distinguished people. The first of the anniversary functions was a reception in the town hall by the Lord Mayor and the Free Libraries Committee on April 2nd. This was followed on the next morning by a meeting in the Whitworth Hall, Owens College, presided over by Mr. Plummer, the chairman of the Libraries Committee, at which a congratulatory message from the King was read and many addresses were received from literary, artistic, scientific, and other societies not limited to Manchester. As showing the different state of things 50 years ago it may be mentioned that at the celebration in 1852 Dickens and Thackeray proposed and seconded a motion expressing the hope that the books "would prove a source of pleasure and improvement to the cottages, garrets, and *cellars* of the poorest of our people." Happily, the cellar dwellings, in which at that time it is said that 10,000 of the people of Manchester lived, are now a thing of the past, for a few weeks ago the last of those in Salford were closed. The library was started in 1852 with 19,000 or 20,000 volumes, now there are more than 300,000. The number of readers in the reading-rooms and news-rooms last year was estimated at over 4,000,000. When work is slack the number of readers increases and it is said that the cotton famine filled the library to overflowing. At the morning meeting on April 3rd Professor W. Macneile Dixon of the Birmingham University, Sir Frederick Bridge, and Professor Boyd Dawkins spoke, and Sir J. Crichton Browne gave a characteristically brilliant and, as Principal Hopkins said, charming speech. Several other gentlemen spoke. A luncheon at the town hall followed, after which the company present was addressed by Sir Lewis Morris, among others, who said that he remembered the speeches of Dickens and Thackeray at the ceremony 50 years ago. In the afternoon the John Rylands Library was visited. It is of course the famous Althorp collection, with additions, and is rich in old books, containing as it does some of the finest Caxtons in the country. This busy day was brought to a close by a meeting in the evening at the Free Trade Hall, presided over by Lord Avebury who gave an interesting address. He was followed by the Bishop of Manchester who spoke with his usual weight and strong sense, by Lord Lytton, Miss Burstall, Sir W. H. Houldsworth, M.P., Sir J. Crichton Browne, and Sir W. H. Holland, M.P., and the meeting ended with a vote of thanks to Lord Avebury on the motion of the Lord Mayor.

*London and North-Western Railway Company Ambulance Work.*

Belle Vue Gardens, or rather one of the assembly-rooms there, would to an uninitiated person have appeared the scene of some severe accident on April 3rd. A figure with bandaged head was having a leg splint put on by grave-looking men and was then lifted on to a stretcher and carried away. Other cases more or less similar were attended to, and it was soon evident that the active agents were ambulance men of the London and North-Western Railway anxiously competing for prizes. The men came from 11 districts, as far apart as Salford, Oldham, Crewe, Widnes, Wigan, Kendal, Shrewsbury, Birmingham, Bangor, Leicester, and Wolverton. The competition occupied the greater part of the day. In the end it was found that the first three teams, in their respective order, were Kendal, Shrewsbury, and Oldham, though few points divided them from their nearest competitors. Dr. J. A. Sutherland of Cleckheaton and Dr. J. B. Wilkinson of Oldham, the examiners, said that the general excellence of the teams was so high that it was only by minute watching in matters of detail that they were able to place the first three in order of merit. While the chief prizes went to these teams, the challenge shield going to Kendal, the members of other teams received encouraging presents. Mr. Dorrington, one of the directors, said that though it was only in 1897 that the London and North-Western Railway Company was formed into a centre of the St. John Ambulance Association, yet since then 3228 members of the staff had passed through the classes and obtained certificates of efficiency, while 845 had passed the second and 547 the third or final examination. The entire expense was borne by the company. During the year first aid was rendered in 1871 cases of accident, most of them happily not being serious. The important part played by the "patients" was duly acknowledged. "They had not only pleasantly borne the bandaging and splint-tying process but in a fine spirit of self-sacrifice had cheerfully submitted to the severe handling involved in producing artificial respiration." The Kendal team will represent the company in the National Railway Competition.

April 13th

## WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

*Lunacy in Somersetshire.*

ALTHOUGH the administrative county of Somerset increased in population only to the number of about 7000 persons during the ten years 1891–1901 the county council has for some time been considering the advisability of increasing the asylum accommodation at present available and on April 7th decided to extend the Cotford asylum, near Taunton, at a cost of £35,000. This asylum, which was first used in 1897, was originally designed for 700 patients, but provision was made in the first instance only for 450, the cost of administration being thus proportionately increased. There are now 490 patients at Cotford and the weekly charge made to the unions for lunatics is 9*s.* 4*d.* per head.

*Bristol Eye Dispensary.*

The annual meeting of the subscribers to the Bristol Eye Dispensary, which has now been in existence 91 years, was held on April 6th, under the presidency of Mr. P. J. Worsley. The medical report showed that 1824 patients had been treated during 1902, being an increase of over 80 compared with 1901. The financial statement was satisfactory.

*Bristol Hospital Sunday Fund.*

Up to April 13th the collections for the Bristol Hospital Sunday Fund from 324 places of worship amounted to £1560. The result, considering the unfortunate weather on Hospital Sunday, compares fairly well with the collection in 1902—namely, £1612 from 300 places of worship.

*Death of Mr. Henry Ormerod, M.R.C.S. Eng., L.S.A.*

A severe loss has been sustained by the members of the medical profession in the neighbourhood of Bristol through the death of Mr. Henry Ormerod who fell a victim to an attack of pneumonia on March 30th, after an illness lasting only about ten days. Mr. Ormerod received his medical training at the Bristol Infirmary and Medical School and qualified in 1856 when only 21 years of age. He commenced practice almost at once in the village of Westbury-on-Trym, where he lived until the time of his death. He was medical officer to several friendly societies and was poor-law medical officer and public vaccinator to the Barton Regis Union. In his professional work he was most pain-taking, energetic, and self-sacrificing. As an amateur photographer Mr. Ormerod was distinguished even in Bristol and Clifton where the art has many eminent exponents and he possessed an exceedingly fine collection of photographs. He leaves behind him a widow and three sons, one of whom was associated with him in practice.

*Cardiff Infirmary.*

An anonymous donor has presented £1000 to the executive committee of the Cardiff Infirmary to defray the cost of the erection of a separate pavilion in which patients suffering from lupus may be treated by the Finsen light and the x rays.

April 13th.

## SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

*Lord Balfour and the Vaccination Law.*

A DEPUTATION from the Scottish Anti-Vaccination League waited upon Lord Balfour, the Secretary for Scotland, in Edinburgh on April 14th with reference to the exclusion of Scotland from the benefits of the English Act granting exemption from prosecution to conscientious objectors. Lord Balfour, replying to the deputation, said that he could not

imagine any case which seemed to him to have been more fully proved up to the hilt than that the process of vaccination was a great preventive of small-pox, an expression of opinion which it is to be hoped will have its effect. He added that relatively to the total number of vaccinations performed the number of deaths following vaccination was trifling, and with the improvements in the process was a constantly diminishing quantity. The figures at the present moment for Scotland, he said, showed that by the administration of the law there were vaccinated successfully about 95 per cent. of the children born, and about 97½ per cent. of all those born who lived six months were traced and only about 2½ per cent. were not accounted for. There was no cause for a conscience clause in Scotland. This clause was the result of the particular circumstances in England, where the law was not so wisely administered as it was in Scotland. Lord Balfour concluded by saying that he could not hold out any hope of introducing legislation similar to the English law.

*The Relationship of Human Tuberculosis to that of Bovines.*

Under the above title Dr. D. J. Hamilton, professor of pathology in the University of Aberdeen, and his colleague Mr. J. McLauchian Young, F.R.C.V.S., lecturer on veterinary hygiene, have published in pamphlet form a very detailed account of 20 experiments on the infection of calves with tuberculosis of human origin. The experiments were arranged in four series, in the first and second of which the object of the inquiry was to ascertain whether human tuberculosis could be communicated to the calf (1) by feeding with tuberculous sputum and (2) by subcutaneous inoculation. The third series of experiments had for its object the repetition of some of the foregoing made (1) with caseous glands and (2) with tuberculous sputum, the latter being given by subcutaneous inoculation, by inhalation, and by intravenous injection. In the fourth series the purport was to prove whether or not the human bacillus gained in virulence by being transferred from one bovine host to another. They sum up their results in ten conclusions, the principal parts of which are as follows. Although human tubercle is probably not so virulent for the calf as that derived from bovines, yet it can be readily inoculated upon that animal by a variety of methods. When administered by the mouth tuberculous sputum induces an abdominal lymph-gland tuberculosis without necessarily the intestine being in any way involved. When tuberculosis from a human source has been ingrafted upon a calf it gains enormously in virulence by being reinoculated upon a second calf. These results are a direct contradiction of those alleged to have been obtained by Professor Robert Koch and Professor Schütz.

Among the honorary degrees conferred by the University of Aberdeen on April 8th were two of medical interest. The degree of Doctor of Laws was conferred upon Professor Dewar, professor of experimental philosophy in the University of Cambridge, and upon Sir Frederick Treves.

April 14th.

## IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

*Small-pox in Dublin.*

THE epidemic of small-pox in Dublin would seem to have so far been effectively checked. There have been only about 75 cases with three deaths. The number of so-called "contacts," however, is large and there has been much difficulty experienced in isolating and disinfecting them.

*Royal College of Surgeons in Ireland.*

The President and council have appointed Dr. E. Wolfenden Collins, formerly surgeon to Jervis-street Hospital and senior demonstrator of anatomy, School of Physic, Trinity College, now in practice at Sydenham, to represent the College at the coming International Medical Congress at Madrid.

*Rainfall in March in Ulster.*

March has been in the north of Ireland a record month from a meteorological point of view, as rain to the extent of 4·77 inches fell, and there was not one of the 31 days on which rain did not fall. During the past 28 years there have been only three in which the rainfall had been heavier during March—1881, 1896, and 1897. The year's rainfall so far is 13·12 inches, that is, almost twice as much as in the same period of 1902, while the average for the past 28 years has been 9·07 inches. There are no such records except in 1884 (13·40 inches) and 1877 (14·87), for a period of 28 years. March opened wet and continued dull and damp until the close; only on two days was the fall as low as 0·01 inch. The present year has broken the record for its rainfall up to the present date and there has not for years been such a cold, miserable Easter. On Easter Monday the ground was covered with snow and this has been succeeded by cold wet weather.

*The Irish Medical Association.*

The medical men residing and practising in Downpatrick Union met on April 8th in the Dispensary, Downpatrick, Dr. J. M. Heron, J.P., being in the chair, and decided to form a North Down Branch of the Irish Medical Association, the first meeting to be held for convenience in Belfast on April 30th. The following resolution proposed by Dr. R. H. Sproulle and seconded by Dr. G. Browne was carried:—

That we, the medical officers of the several dispensaries in Down Union and the other medical men associated with us, beg to tender our best thanks to Dr. F. P. MacLaughlin and Dr. J. W. Olpherts for their unselfish efforts to try to improve the position of the Poor-law medical officers generally, and we also express our entire approval of their actions in trying to secure our rights.

A vote of thanks was also passed to the President of the Royal College of Surgeons in Ireland (Dr. L. H. Ormsby) and to Sir Thomas Myles (late President) for advocating the cause of the Irish medical dispensary officers.

April 14th.

## PARIS.

(FROM OUR OWN CORRESPONDENT.)

*Tetanus following Injections of Gelatinised Serum.*

IT is well known that injections of gelatinised serum possess the power of increasing the coagulability of the blood and this treatment has been employed with success in cases of inoperable aneurysms or in cases of internal hæmorrhage. Unfortunately, however, gelatin is not always prepared from bones, but as a matter of cheapness is frequently made from the hoofs of horses or cattle and is thus often infected with the bacillus of tetanus—a bacillus very resistant to the ordinary process of sterilisation which is employed in the case of gelatin. Various fatalities have occurred from tetanus following injection of gelatin and at the meeting of the Academy of Medicine held on April 7th M. Chauffard related 18 cases in which fatal tetanus had followed gelatin injections, while M. Dieulafoy had just experienced the nineteenth. M. Chauffard therefore proposed that gelatinised serum should be inserted in the Codex so as to guarantee its being prepared with every possible precaution to avoid the presence of the bacillus of Nicolaier. That is to say, the gelatin should be sterilised in an autoclave at a temperature of 115° C. for half an hour and the right to prepare gelatinised serum should only be given to authorised firms and those the firms who have at present the right to prepare serums and so possess all the necessary plant. A long discussion then took place and M. Chantemesse objected to the clause about special firms, for gelatinised serum was not an organic serum. Also he thought that exposure to a temperature of 115° C. for half an hour would modify the gelatin and would deprive it of its coagulating powers. M. Pouchet replied that thorough sterilisation would not affect the coagulating powers of gelatin. M. Richaud had shown that commercial gelatin always contained lime and in his opinion the coagulating powers were due to that fact. M. Gley reminded the meeting of some experiments which he had made with M. Richaud and which he had related to the Society of Biology. There he had shown that decalcified gelatin loses its coagulating powers, all the more so if, in addition, it were neutral. The coagulating powers of gelatin depend, therefore, on the acidity of the gelatin and upon its percentage of lime. M. Nocard agreed that it would be a good thing to limit the preparation of the gelatin to certain firms and he thought that the method of preparation and of sterilisation should be laid down in the Codex. M. Brouardel agreed to this and the matter was eventually referred to a special committee.

*Acne Rosacea and Phototherapy.*

At the same meeting of the Academy of Medicine M. Leredde gave a most interesting account of his experience

of the above-mentioned treatment. Acne rosacea is in general a most stubborn complaint and has to be treated for a long time with ointments, scarification, and electrolysis. Phototherapy, however, has advanced the treatment very considerably and Finsen has met with success from this method even in severe cases which had lasted for a long time. M. Leredde gave an account of eight cases treated by him in this manner, in all of which a good result was obtained. At first the treatment took a long time, for he was afraid that if he gave sittings of over half an hour troublesome scarring would result. But little by little he found that the patient could safely be exposed for just as long a time as in cases of lupus and he had never met with any scarring as a sequela. Following out these lines of treatment he had been able in two or three weeks to cure cases of acne rosacea which had resisted other much more severe methods for months.

*Jejunostomy.*

At the meeting of the Society of Surgery held on April 1st M. Riche read a paper upon three cases of jejunostomy which had occurred in his own practice. In inoperable cancer of the stomach jejunostomy was preferable to gastro-enterostomy. Jejunostomy gave the stomach complete rest, it was easy to do, and in cases of necessity it could be performed under cocaine. The best method was "*jéjunostomie en Y*," in which the gut was divided, the lower end was fixed to the abdominal wall, and the upper end of the gut was fixed to the lower end.

April 14th.

## BERLIN.

(FROM OUR OWN CORRESPONDENT.)

*Barium Chloride as a Cardiac Tonic.*

DR. SCHEDEL of Nauheim recently read a paper before the Verein für Innere Medicin on the action of chloride of barium on the heart. Making his preliminary experiments on himself he found that when he took 0·02 gramme (one-third of a grain) twice a day after meals his pulse-rate fell from 55 to 51 and from 66 to 61, whilst his blood pressure as measured with Gärtner's tonometer showed a rise of 10 millimetres. When the dose was increased to 0·05 gramme (three-quarters of a grain) the rise in the blood pressure amounted to 30 millimetres. The effect was perceptible even three days after taking the last dose and no undesirable result was experienced. Chloride of barium was then administered to 19 patients, some of whom suffered from heart disease and asthma, while others were the subjects of pulmonary tuberculosis, leukæmia, or chlorosis, in consequence of which their blood pressure was low. Under this treatment the patients improved very much; cyanosis and œdema disappeared; the pulse became regular, full, and less frequent; the blood pressure rose; and the secretion of urine increased. The effect on the blood pressure only continued for three days as a rule, but the improvement in the pulse and in the patient's general condition was apparent even after the lapse of eight days. Chloride of barium might therefore replace digitalis in the treatment of many organic diseases of the heart, whether of the muscular substance or of the valves. In the discussion Dr. Aronson of Ems made a reference to the action of chloride of barium on the intestine. He said that in veterinary medicine intravenous injections of it were given for colic and that the treatment had been followed by serious complications and even by death. To this Dr. Schedel replied that toxic effects occurred only when large doses were given; with small doses such as he recommended no action on the intestine was observed.

*The Congress on Venereal Diseases.*

The German association for the prevention of venereal diseases held its first meeting at Frankfort on March 9th and 10th, Professor Neisser of Breslau being in the chair. The meeting was attended by a great number of medical men as well as by members of the general public, and included also a certain number of ladies. The Government was represented by Dr. Kirchner of the Government medical department, the international association by Dr. Dubois of Brussels, and the French association by a delegation consisting of Dr. Gaucher, Dr. Chartin, and Dr. Fournier. The first subject discussed at the meeting was the legal responsibility of venereal patients. Professor von Liszt of Halle, one of the leading criminologists of Germany, recommended that such patients should be required to appear before a court of justice if they were suspected of having conveyed infection to previously healthy persons. Men and women if found guilty must be equally liable to punishment and no special provision should be made for prostitutes; official prostitution would therefore cease to exist. Professor Fraenkel of Halle spoke against these proposals. He said that under this system the prisons would very soon be overcrowded; if prostitutes were imprisoned new recruits would very soon appear, and so on. Prisons and hospitals of enormous size would become necessary. Moreover, when venereal patients knew that their medical attendant might possibly be compelled to give evidence respecting them before a court of justice they would as much as possible avoid consulting a medical man. Professor von Liszt's views did not meet with the approval of the meeting; in particular Herr Clausmann, of the Cologne police, explained that they were hardly capable of being put in practice. The right of control of prostitutes should, as hitherto, be left to the police. The second subject of discussion related to the education of public opinion by the medical profession. Dr. Cnyrim of Frankfort and Dr. Block of Hanover were of opinion that abstinence and chastity might be recommended to young persons as the best prophylaxis against infection. Their views were opposed by the celebrated physician Professor Erb of Heidelberg, who drew attention to nervous troubles caused by abstinence. Herr Clausmann said that he did not believe in the alleged efficacy of education, which had failed in the case of tuberculosis and would be a failure in venereal diseases likewise. Dr. Kirchner stated that this view was erroneous, for the mortality from tuberculosis had decreased from 51 in 10,000 in 1875 to 21 in 10,000 in 1900, a result due, among other circumstances, to the better training of the public in hygienic matters. Finally, the control and compulsory medical examination of prostitutes were discussed. The debates on this subject were rather animated as there were two parties in strong opposition to one another. One party, though dissatisfied with the present system, advocated a reform of the control and the medical examination of prostitutes; the other party, consisting especially of ladies, believed that the control should be abolished altogether as being immoral and inefficacious. Professor Neisser was of opinion that the control of prostitutes should be withdrawn from the police and left to the medical profession. There should be special sanitary commissions for that purpose the members of which would undertake the examination of prostitutes, would supervise their treatment, and would be entitled to give them certicates of health. Dispensaries should be established where the women were to be attended. The police should interfere only if the women defied medical control. Professor Lesser of Berlin seconded Professor Neisser's proposals and explained that medical inspection should in the first instance be a voluntary one and should be made compulsory only when prostitutes were proved to withdraw themselves from medical examination.

April 13th.

## NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

*Lack of Surgeons in the United States Navy.*

THE demand for young medical officers in the United States navy is great. Assistant surgeons are needed badly at the present time in the medical corps of the navy, there being 27 vacancies in that grade. Surgeon-General Rixey is using his utmost endeavours to draw young medical men into the service. The work of the medical corps is increasing yearly. The strength of the navy is now 38,000 and within the next six years it will probably be 80,000. Besides the routine work, such as physical examinations, there are 14 naval hospitals, naval stations, navy yards, and receiving ships where the services of surgeons are required.

*The Methods of Quacks in New York City.*

The Committee on the Prevention of Tuberculosis of the Charity Organisation Society is taking strong measures to restrict the operations of certain individuals and firms who for years have been reaping a rich harvest by playing upon the credulity of consumptives. Their mode of procedure is stated by the *New York Evening Post* to be as follows: (1) To open a set of offices, handsomely appointed and filled with medical works, a variety of bottles stuffed with queer matter, and to have scattered about mysterious instruments known as "inhalators" or the like; (2) to trade on the name of

some world-renowned European specialist who has made a life-long study of tuberculosis and, while not explicitly stating that he is interested in the concern, to give subtly the impression that the "professor" has the exclusive right to use the great specialist's name; (3) to insert sensational advertisements in massive type in such newspapers and periodicals as have no scruples in accepting them, proclaiming to the world that at last a cure has been found for the "dread white plague"; and (4) to have on hand a batch of "testimonials" certifying that the writers have had consumption in the worst form and have been thoroughly cured by Professor ———. One of the most flagrant of these concerns trades upon the name of Professor Robert Koch. The quack's surname—his own or assumed—is the same and his advertisements and circulars convey the impression to ignorant persons that Professor Koch is either his partner or his sponsor. The Committee on the Prevention of Tuberculosis recently made it its business to write to Professor Koch on the matter and he sent a most indignant reply. The alleged "cure" based upon his name was a base fraud, he said. He had no relations with the exploiter or with any member of the concern, nor had its methods his sanction in any way. Another firm trades upon the name of Dr. Adolf Hoff, the Viennese specialist. The names of many New York physicians have been used, but in such a manner that there are no means of redress by law. The way in which such concerns obtain fraudulent testimonials is very ingenious. They treat bad cases of consumption until the means of the victims are exhausted and then refuse to continue the treatment unless a certified testimonial of complete cure is given; thus many testimonials are obtained. The methods of the quacks have become so impudent and unbearable that the Committee on the Prevention of Tuberculosis has caused to be printed for general circulation resolutions which it recently adopted, declaring that there is no special medicine for consumption known and that the so-called cures and specifics and special methods of treatment widely advertised in the daily papers are, in the opinion of the committee, without special value. The "cures," the committee goes on to say, "do not at all justify the extravagant claim made for them and serve chiefly to enrich the promotors at the expense of the poor and frequently ignorant or credulous consumptives." No cure, thinks the committee, can be expected from any kind of medicine or method except the regularly accepted treatment which relies mainly upon pure air and nourishing food. America is the happy hunting ground of quacks and nowhere in the civilised world is so much licence given to this kind of adventurer. It will be interesting to watch the effect which the warning of the Committee on the Prevention of Tuberculosis will have on the actions of these self-styled curers of consumption.

*War against Consumption in the United States.*

The efforts to combat tuberculosis effectually are taking shape in New York State and in many other parts of America. Dr. George F. Shrady has recently pointed out that proper provision for the housing of the working-classes must be a main feature in any crusade against tuberculosis and recommends that great cities should build in good situations tenements containing plenty of windows through which light and air can pass freely and rent them to their wage-earning citizens. With regard to those who are already afflicted with tuberculosis and for whom preventive measures would be of little or no benefit, Dr. Shrady suggests that either the municipalities or wealthy citizens should build special hospitals and surround them with extensive grounds where patients may take exercise in the open air and may to all intents and purposes live in the open air. In the United States there would probably be much opposition to a scheme of municipal ownership of any kind as the interests of the politicians would suffer thereby, but it would seem that State hospitals and sanatoriums will soon be erected in New York State for the treatment of the indigent. The fact is beginning to be recognised by the general public that the presence of consumptives in its midst, especially in large cities, is the most potent means of spreading the disease and is a menace to the health of all.

April 4th.

DEATH OF A CENTENARIAN.—Mr. William Morrell, whose funeral took place at Nottingham on April 4th, was said to have attained the age of 103 years. The funeral service was conducted by members of the Salvation Army of which the deceased was for many years an adherent.

## AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

*The Bubonic Plague.*

FOUR fatal cases of plague have occurred at Fremantle. The extermination of rats is being vigorously carried on and people are rushing to be inoculated. Out of 178 rats destroyed in the presence of the authorities 28 were found to be infected. In Brisbane a fatal case has occurred. The other States remain free, but the extermination of rats is carried on, and all vessels from infected ports (and all persons on board) are strictly inspected.

*Leprosy.*

The Board of Health of New South Wales has been somewhat severely criticised for the action it has taken in regard to a case of leprosy at Strathfield, a suburb of Sydney. The patient was a European gentleman of means, and when his disease was diagnosed as leprosy and reported to the board his friends requested that he might be isolated in his own dwelling under Section 47 of the Health Act. The board was furnished with plans of the house and surrounding locality and with a report from one of its own officers. It decided to accede to the application. The residents in the district, however, were indignant and protested against the establishment of what was practically a lazarat in their midst. The board considered this protest and "was clearly of opinion that it had duly exercised the powers conferred upon it by the Act, and had amply discharged its duty of preventing all danger of spread of infection by the patient, but in view of the protests and in exercise of its discretion it directed that the inexpediency of taking up residence in a neighbourhood where his presence was strongly resented should be pointed out to the patient's friends. The friends were advised accordingly and at once expressed their anxiety to give up the plan. But they pointed out that they had already bound themselves to purchase the property and actually had paid a deposit upon it. All these facts and other circumstances having been taken into consideration by the board at its meeting on Feb. 17th it decided that it could not interfere further. It is not pretended that any substantial risk of danger exists, nor could such a contention be successfully supported; the protesters' fear is of injury to their pecuniary interest, and that injury—if it should occur—depends solely on the publicity they themselves have given to a matter which the board has (as always) endeavoured to conduct privately." So far as the particular case is concerned the matter has been settled by the patient removing from the district. The municipal councils are urging that the powers of the Board of Health should be restricted. They point out that under Section 4 of the Leprosy Act it was provided that "the Government may, by proclamation published in the *Gazette*, direct that any suitable place be set apart as a lazaret for the reception and medical treatment of lepers and may make regulations for the safe custody of such lepers therein." And in the next section it was provided that the Board of Health after being satisfied that such person was suffering from the disease of leprosy might order that such person be removed to, and detained in, such lazaret until released by order of the board, or "be isolated in such place and manner as the board may direct." The latter clause read in connexion with the provision for lazarets had been generally thought to be a provision for temporary isolation merely, pending removal to a lazaret, but the Board of Health by its action in the case at Strathfield had treated it as giving it power practically to create a private lazaret in any locality without notice and by a simple resolution of the board. In the Strathfield case the board, instead of having the patient removed to a lazaret, had allowed a permanent place of isolation within the meaning of the Act to be fixed in a fairly populated part of the borough and in a comparatively small area of land.

*Consumptive Sanatorium at Wentworth.*

On Feb. 18th the Governor of New South Wales opened a sanatorium for consumption at Wentworth. The institution is the final outcome of a meeting held on May 17th, 1897, when the following resolution was proposed by Lord Hampden:—

That in view of the fact that no adequate provision for the treatment of consumptive patients had been made in this colony it is expedient that homes, to be known as the Queen Victoria Homes for Consumption, should be established in commemoration of the record reign of her most Gracious Majesty Queen Victoria.

This was carried unanimously. A large general committee was appointed and subscription lists were opened and various methods were adopted to obtain funds. At the first annual meeting the honorary treasurers presented a balance-sheet showing a credit balance of £13,415 2*s.* 6*d.* At the end of the second year this had increased to £14,859. By further efforts, the principal being the holding of a fancy fair and bazaar, this sum was increased during the next year, so that at the third annual meeting there was a credit balance of £21,635 15*s.* 10*d.*, and this amount has practically not been further augmented. During the second year of the existence of the fund—i.e., on Sept. 1st, 1898—the executive committee took over the management of the home at Thirlmere, maintaining a daily average of about 38 patients at an annual cost of about £1300. This money had been raised by yearly subscriptions and for the past two years these subscriptions had been endowed pound for pound by the Government. During 1901 the committee decided to erect a new sanatorium for patients in the early stages of phthisis and purchased some property about five miles from Wentworth, on the eastern slopes of a high tableland on the Blue Mountains. The original house of six rooms, with conveniences, now forms the administrative block, to which is attached a temporary kitchen. The committee intends, when funds will permit, to erect a complete kitchen block and laundry at the rear of the present buildings. Additions to the original building have been made in the shape of large dining and sitting rooms, and three large wards each containing six beds and two single rooms. This makes a total at present of 20 beds. The cubic air space per bed is 1200 feet. All wards and the sitting-rooms are provided with large windows and fanlights, so that more than half the wall space consists of windows and doors. Each ward is a separate and distinct block by itself, connecting with others only by a wide corridor, and the ward blocks are connected with the administrative apartments by an open covered way, inclosed on the westerly side for protection against wind. The whole of the buildings face the north-east and are protected against the westerly wind by hills and trees. The walls and ceilings inside are painted and varnished and can be washed down. A medical officer's residence has been built near the administrative block. Provision is being made to have sputum kept in solution and subsequently utterly destroyed. The total cost of the institution, including the purchase of the original cottage and ground, is about £3800. The necessity of a central institution in Sydney for examination of cases and the segregation of advanced cases is being more clearly recognised and advocated. Alderman Dr. W. C. Wilkinson moved in the city council that

The health committee should at once consider the expediency of introducing further measures for the prevention of the spread of consumption in the city.

*Outbreak of Anthrax in Cattle.*

A serious outbreak of anthrax has occurred at two separate districts near Melbourne. The affected areas have been strictly quarantined and disinfected. The sale of milk and butter by all owners of dairy cattle in the affected districts has been stopped. All cattle found wandering are quarantined. Preventive inoculation of all dairy cattle is urged on all farmers. So far no case has occurred in man.

*Hospital Affairs.*

The Queen's Memorial Hospital for Infectious Diseases at Melbourne is still unopened. The Minister of Health "is considering what obligation the Government should undertake in regard to cost of maintenance." The Lord Mayor of Melbourne has informed the Minister that the municipalities would combine to open the hospital and to maintain it if the Government would contribute half the cost of maintenance. He contended that, having regard to the spirit of the Health Act, the Government should bear that portion of the cost. He saw no chance of the municipalities endeavouring to open the hospital except on the terms stated.—At the February monthly meeting of the board of directors of the Sydney Hospital the president reported that the appointments of the following honorary medical officers had become vacant through effluxion of time—viz., Dr. A. Jarvie Hood, Dr. H. L. Maitland, Dr. F. W. Hall, Dr. H. S. Stacy, Dr. Gordon MacLeod, Dr. Ralph Worrall, Dr. George Armstrong, Mr. A. J. Brady, Dr. P. R. Kuma, Dr. Sydney Jamieson, Dr. W. McMurray, and Mr. C. G. Hodgson, honorary operating dentist. It was decided to advertise the vacancies and to invite applications for appointment. Dr. A. G. Corbin was appointed medical superintendent, vice Dr. C. V. Bowker, resigned. Applications were received for appointment as junior assistant gynæcological surgeon. A ballot resulted in favour of Dr. Bowker who was thereupon declared duly elected. The following gentlemen were appointed to the under-mentioned positions at the hospital—viz., Dr. Combes, first senior resident medical officer; Dr. Tange, second senior resident medical officer; and Dr. Ambrose, resident pathologist.—The honorary medical staff of the Mooroopna (Victoria) Hospital has resigned in a body. The reason assigned for this step was the supposed intention of the committee to appoint as a member of the staff a certain practitioner with whom the staff refused to be associated in any way. The committee decided to hold over the resignations and to inform the staff that it had neither nominated nor appointed the practitioner in question. It is understood that friction had also arisen between the honorary staff and the resident surgeon, but now all differences have been amicably settled.

*Victorian Lunatic Asylums.*

The Chief Secretary of Victoria is engaged in carrying out an inspection of the asylums of the State. He is said to be fully aware of the need for alterations. He admits that the accommodation is insufficient, that the buildings are out of date, that the salaries of medical officers are too small, and that a receiving house is a necessity, but he can do nothing unless Parliament votes the necessary funds. Meanwhile nothing is actually done to improve matters in any way. The present maladministration has just received a scathing condemnation in a paper read at the last meeting of the Medical Society of Victoria by Dr. J. W. Springthorpe, in which he compared, item for item, the Victorian asylums with those of America ten years ago. The society resolved to ask the Minister to receive a deputation on the subject.

*Overcrowding of the Profession in Australia.*

The long drought has caused a serious financial depression in Australia and especially New South Wales and the medical profession is feeling it severely. It has generally been considered in Australia that one medical man was sufficient for every 1500 persons; while the population of New South Wales increases by about 30,000 per annum, no less than 60 medical men are registered every year, or about one to 500 persons. In the city the average number of medical men to population is one to 800 and in the suburbs one to 2000. About ten years ago the average yearly income of medical men was about £800; now it is about £500. There has been a wonderful increase in the number of students attending the medical school at the university; in 1883 there were four students; the number has since then increased each year without exception and in the current year stands at 204. Altogether the names of 522 students have appeared on the rolls. Of these 207 men and 11 women have graduated, while 100 have not graduated although they have attended long enough to do so. Roughly, therefore, one in three has failed to complete the curriculum. Of the 218 who have completed 142 have done so in the shortest time and 76 with delay varying from one to six years. Putting these figures in another way they show that of the 318 who have attended long enough to get a degree only 45 per cent., or less than one-half, have graduated in the minimum time, a fact which indicates that candidates have not slipped through too easily. Of the 218 there remain 205 at work to-day and 164 of these have been classed. According to a report 14 are said to be doing excellently well, 68 very well, 52 well, and 27 fairly. Thus 134 out of 164 are doing well or better than well. Of the 798 practitioners at work in the State only 133 are Sydney graduates.

*Suicide of a Medical Man.*

On Feb. 27th Dr. W. L. Roper shot himself through the head with a revolver, causing sudden death. He had recently been acting as assistant to Dr. Altmann at Bright, Victoria, and had been in bad health.

March 3rd.

# Obituary.

JAMES PRIESTLEY, B.A., M.D. R.U.I., D.P.H., R.C.P.S. ENG.

DR. JAMES PRIESTLEY of Lee-on-the-Solent, who died on March 31st, like many another medical man, contracted his fatal illness, septicæmia, in the discharge of his duties. He had attended his patients as usual up to March 27th, on

the evening of which day he went to the bed from which he never rose again. On the 29th Dr. J. Ward Cousins and Dr. W. P. McEldowney of Portsmouth operated and this was repeated on the 30th; but on the 31st there was a sudden collapse and Dr. Priestley expired shortly before midnight. He was an Irishman, the son of James Priestley of Saintfield, co. Down, where he was born 38 years ago. He had a distinguished collegiate career. While an undergraduate he was mathematical scholar for three years and in his fourth year was senior scholar and demonstrator in experimental physics; while in his final examination he obtained first-class honours and exhibitions in the same subjects. After taking the B.A. degree in 1886 he studied medicine at Belfast. He graduated M.D. of the Royal University of Ireland in 1897, having taken the diploma in Public Health at the Royal Colleges of Physicians and Surgeons, England, in 1893. He was for several years engaged in public health work in connexion with the Paddington Vestry and afterwards with the Metropolitan Asylums Board, being senior medical officer at the North-Eastern Hospital, Tottenham, for three years. Dr. Priestley left the North-Eastern Hospital five years ago to take up private practice at Lee-on-the-Solent. Here his unostentatious manner and kindly disposition, together with his unremitting attention and skill as a medical man, endeared him to all the community. He was local lecturer to the St. John Ambulance Association and on the Tuesday previous to his death delivered the last lecture of the session. A memorial service was held in Lee church on April 2nd and was attended by practically every inhabitant of the place, after which the body was removed to Southampton *en route* for Belfast, where the funeral took place on the 6th in the family burial ground. A very large and representative company of relatives, friends, and sympathisers assembled to pay their last tribute to the deceased.

### SOLOMON CHARLES SMITH, M.C.R.S. ENG., M.D. DURH., M.R.C.P. LOND.

WE regret to announce the death of Dr. Solomon Charles Smith at Walton-on-Thames on Sunday, April 5th. Dr. Smith was born in Halifax in 1842 and was the son of a highly respected and able practitioner, Dr. Solomon Smith. He was educated for his profession at Birmingham, Guy's Hospital, and Paris, and became M.R.C.S. Eng. in 1863, M.D. Durham in 1882, and M.R.C.P. Lond. in 1892. In the year 1868 he was elected as one of the surgeons of the Halifax Infirmary and very soon made a reputation for himself as a good surgeon and an able all-round practitioner.

For some years he took a leading position in the profession in Halifax and was in great request in consultation in the town and district. He was once president of the Leeds Medico-Chirurgical Society and was a member of the Pathological, Clinical, and Harveian Societies. In 1890 Dr. Solomon Smith, wishful to lead a less active life, decided to give up general practice and to devote himself entirely to consulting work. Two years afterwards he resolved to remove to London, when he became consulting honorary medical officer to the Halifax Infirmary, being shortly afterwards elected physician to the Westminster Dispensary. For four years previous to this he had been very active in urging upon the governors and the public the necessity for the erection of a modern hospital and propounded a scheme for the erection of the Royal Halifax Infirmary which was built at a cost of £100,000 and was opened by the Prince and Princess of Wales in 1896. Those who knew his long-cherished desire that Halifax should have an infirmary most modern in construction and replete with everything for the treatment of disease on the most scientific principles could wish for no better memorial of his 24 years' connexion with that institution than the present building. His public addresses upon sanitation were the means indirectly of great improvements in the sanitation of his native town and district and when he left Halifax the mayor and inhabitants recognised his work by having an oil painting of him painted for the municipal public library, a replica of which with some silver plate was presented to his wife.

In London Dr. Smith exercised with energy the bent towards literary work that he had already displayed in his public addresses. He became a contributor to the *British Medical Journal* and coöperated with Sir Henry Burdett in the editorship of the *Hospital*. He was the writer of the article on Epidemiology of Cholera in Allbutt's System of Medicine and of Water-borne Diseases in the Twentieth Century Practice of Medicine.

He leaves a widow, two daughters, and two sons, both of whom are in the medical profession, to mourn their loss.

## Medical News.

UNIVERSITY OF ABERDEEN.—The following degrees and diploma have been conferred:—

*Honorary Degree of Doctor of Laws (LL.D.).*—Sir Frederick Treves, Bart., K.C.V.O., C.B., F.R.C.S., Serjeant-Surgeon-in-Ordinary to H.M. the King.

*Degree of Doctor of Medicine (M.D.).*—William John Ironside Bruce, M.B., Ch.B., Dingwall (under the New Regulations); *James McRae Cowie, M.B., Ch.B., Clayton Vale Hospital, Newton Heath, Manchester (under the New Regulations); William Stuart McGowan, M.A., M.B., C.M., Manchester; and *John Horne Wilson, M.B., Ch.B., Aberdeen (under the New Regulations).

* Thesis considered worthy of honours.

*Degrees of Bachelor of Medicine (M.B.) and Bachelor of Surgery (Ch.B.) (New Regulations).—With Second-class Honours:* George Grant Macdonald, M.A., Banff; and Hugh MacLean, Aberarder, Daviot, Inverness. *Ordinary Degrees:* William Anderson, Kintore, Aberdeenshire; Frank William Begg, New Deer, Aberdeenshire; Hugh Stewart Brander, M.A., Aberdeen; Charles William Forbes Gray, Aberdeen; John James Harris, Newcastle, New South Wales, Australia; George Hendry, Buckie, Banffshire; James Forbes McIntosh, Inverurie, Aberdeenshire; John Alexander McKenzie, M.A., Mintlaw, Aberdeenshire; Gordon William Maconachie, Aberdeen; William Anderson Mearns, M.A., Aberdeen; Kenneth Stewart Melvin, Montrose; George Mitchell, Aberdeen; Andrew Bernard Morris, Launceston, Tasmania; William Fraser Munro, Daviot, Inverness; Adam Stephen Niven, M.A., Rothienorman, Aberdeenshire; Alastair Gordon Peter, M.A., Inverness; William Robertson Pirie, Nairn; James Hay Shepherd, M.A., Tarves, Aberdeenshire; Frederick Keiller Smith, M.A., Aberdeen; William Stewart, Inverness; George Stoddart, M.A., Dyce, Aberdeenshire; Cornelius Agnew Suvoong, M.A., Shanghai, China; William Alfred Watson, Aberdeen; and Arthur John Watt, Aberdeen.

*Degrees of Bachelor of Medicine (M.B.) and Master in Surgery (C.M.) (Old Regulations).*—John Fraser, Aberdeen; and Julius Ernest Perera, Colombo, Ceylon.

*Diploma in Public Health.*—William John Ironside Bruce, M.B., Ch.B. Aberd., Dingwall; Hugh Allan Davidson, M.B., Ch.B. Aberd., Lieut. R.A.M.C.; Andrew Hosie, M.D. Aberd., Major, R.A.M.C.; David Albert Hutcheson, M.B., Ch.B. Aberd., Aberdeen; and George Nicol Wilson, M.B., C.M. Aberd., Aberdeen.

Dr. Charles A. Wigan has been elected a district councillor on the Portishead urban district council.

Dr. R Deane Sweeting has been appointed by the Epidemiological Society of London to represent the society at the International Medical Congress at Madrid.

LITERARY INTELLIGENCE.—Messrs. Blackie and Son, Limited, will issue shortly "Elementary Ophthalmic Optics" by Dr. A. Freeland Fergus, surgeon to the Glasgow Eye Infirmary and examiner in physics to the Faculty of Physicians and Surgeons of Glasgow. The book deals mathematically with the fundamental principles of elementary physical and geometrical optics.

SUDDEN DEATH OF A MEDICAL MAN.—Mr. Arthur Edward Buckell, M.D. Lond., M.R.C.S. Eng., was found dead in his surgery at Chichester on April 10th. Dr. Buckell, who was in his forty-eighth year, was physician to the West Sussex, East Hants, and Chichester Infirmary, and medical officer of health and public vaccinator of the No. 2 district of the Westbourne Union.

EPSOM COLLEGE.—Three scholarships have been won by students at Epsom College since the last report was presented to the governors in May, 1902. Mr. L. Sworn has won an open mathematical scholarship of £80 at New College, Oxford; Mr. A. C. C. Parkinson an open classical demi-ship of £80 at Magdalen College, Oxford; and Mr. T. B. S. F. de Chaumont a scholarship of £40 for mathematics at Selwyn College, Cambridge.

COOKERY AND FOOD EXHIBITION.—The fourteenth Universal Cookery and Food Exhibition will be held from April 21st to 24th inclusive, at the Royal Albert Hall, Kensington, W. Competitions for prizes of the total value of £450 will be held and the competitors will include chefs, confectioners, bakers, women cooks, amateurs, assistant cooks, cookery teachers, soldiers, sailors, apprentices, and school children. Lectures and demonstrations will be given

by culinary experts and a large collection of classic and artistic cookery will be displayed.

INTERNATIONAL CONGRESS OF THE MEDICAL PRESS.—The opening meeting of this Congress, which will hold its session at Madrid during the International Medical Congress, is dated for Monday next, April 20th.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL: WINTER SESSION, 1902-03.—The following prizes have been awarded:—First year's students: H. J. Nightingale, the William Tite scholarship, £27 10*s.*; A. C. F. Turner, college prize, £20; and S. F. Dudley, college prize, £10. Second year's students: C. M. Page, the Musgrove scholarship, £38 10*s.*; H. B. Whitehouse, college prize, £20; and R. F. Hebbert, college prize, £10. Fifth year's students: A. E. Boycott (medicine), prize £10; H. I. Pinches (surgery, including ophthalmology), prize £10; H. I. Pinches (midwifery and diseases of women), prize £10; A. E. Boycott (pathology), the Hadden prize, £10; A. H. Hudson (pharmacology and therapeutics), prize £10; G. R. Rickett and F. W. Smith (forensic medicine and insanity), prizes £5 each; A. E. Boycott (public health), prize £10. The Wainwright prize of £10 and the Seymour Graves Foller prize for proficiency in medicine, pathology, and hygiene were awarded to A. E. Boycott of Magdalen College, Oxford, and the Mead medal and the Treasurer's gold medal to G. C. Adeney. The Cheselden medal for proficiency in surgery and surgical anatomy was awarded to H. S. Bennett.

# Parliamentary Intelligence.

## NOTES ON CURRENT TOPICS.

*Imported Milk.*

At the instance of Sir Edward Strachey the Treasury has prepared some interesting information as to fresh and preserved milk imported into the United Kingdom during 1902. From this it would appear that fresh milk was consigned from Rotterdam to London and Harwich, from Amsterdam to Hull, and from Cherbourg to Southampton. Preserved milk other than condensed was consigned to London from Riga, Drammen, Harlingen, Rotterdam, Amsterdam, Ostend, Boulogne, Genoa, Sydney, Brisbane, and New York; to Liverpool from New York and Boston, to Folkestone from Boulogne, to Grimsby from Hamburg and Antwerp, to Harwich from Rotterdam and Antwerp, to Hull from Christiania and Amsterdam, to Newcastle from Copenhagen and Stavanger, to Newhaven from Dieppe, to Southampton from Amsterdam, New York, Havre, and Honfleur, to Glasgow from Antwerp, to Grangemouth from Amsterdam, and to Leith from Rotterdam and Amsterdam. The results of analysis of samples of fresh milk and preserved milk, other than condensed, taken by the Customs authorities during 1902 were as follows—viz.: Feb. 10th, separated milk, percentage of fat 0·20, percentage of non-fatty solids 9·06; Feb. 26th, sterilised milk, 2·91 and 8·47 respectively; March 7th, sterilised milk, 1·89 and 9·07 respectively; March 10th, separated milk, 0·20 and 9·12 respectively; May 26th, sterilised milk, 3·00 and 8·85 respectively; June 24th, fresh milk, 2·83 and 8·80 respectively; June 25th, sterilised milk, 2·60 and 9·34 respectively; Sept. 15th, fresh milk, 3·12 and 9·65 respectively; Nov. 20th, fresh milk, 4·00 and 9·28 respectively; and Dec. 16th, fresh milk 4·00 and 9·28 respectively. The samples taken on Feb. 26th and June 24th, although deficient in fat, were not so reported to the Customs Department, the condition of the samples when received being such as to raise a doubt whether they truly represented the bulk as imported, while the samples taken on March 7th and June 25th were the subject of proceedings against the importers.

*Railway Accidents.*

Arrangements have been made for a debate in the House of Commons on Wednesday, May 6th, on the subject of railway accidents. The speeches will be directed to the administration by the Board of Trade of the Hours of Railway Servants Act, 1893, and the Railways (Prevention of Accidents) Act, 1900.

*Colouring Adulterated Butter.*

When the Sale of Adulterated Butter Bill comes before the Grand Committee a proposal will be made by Sir Edward Strachey to declare that it shall be illegal to colour adulterated butter so as to resemble pure butter.

## HOUSE OF COMMONS.

TUESDAY, APRIL 7TH.

*The Plague in India.*

Dr. FARQUHARSON asked the Secretary of State for India whether, in view of the fact that half a million people died last year in India from plague and of the spread of the disease, he would consider the advisability of sending out a commission consisting of practical sanitarians with a scientific expert at their head to investigate the causes of the disease and to devise a remedy.—Lord GEORGE HAMILTON replied: The honourable Member is probably not aware that the subject of plague in India has recently been investigated by a very strong commission fully competent to deal with it in its scientific, administrative, and sanitary aspects. Its report is accepted as the standard authority on the matter and has been of the greatest value to the Indian Government in combating the disease.

WEDNESDAY, APRIL 8TH.

*Taunton Isolation Hospital.*

Colonel WELBY asked the President of the Local Government Board whether he would explain why an inquiry into the management of the Taunton Isolation Hospital asked for by the Taunton town council and Taunton rural district council, which are jointly responsible for it, had been refused and whether he would reconsider his decision in the matter.—Mr. LONG replied: I understand that an agreement was made in 1895 between the town council and the rural district council under which the hospital referred to was to be managed by the town council for five years and by the rural district council for the next three years. The authority not in management was empowered to appoint a consultative committee to meet the committee of management, and a visiting committee consisting of one member from each authority was to be appointed. The three years of control by the rural district council commenced in 1901. Some complaints were recently made as regards the management of the hospital. The matter was inquired into by a committee consisting of members of both authorities, with the town clerk, who are stated to have expressed themselves satisfied that there was no ground for complaint. The town council asked the Local Government Board to hold an inquiry on the subject, but the rural district council, after receiving a report from its committee of management, informed the Board that it did not join in the application as it considered an inquiry quite unnecessary. It stated that it was quite satisfied that, with some further directions it had given, every care and attention would be bestowed upon the patients. I have no control over the administration of this institution, which rests entirely with the local bodies; and, in the circumstances of the case, I could not undertake to direct an inquiry into the matter. I may point out that the period of management by the rural district council expires this year, when an opportunity will be given to the two authorities to make any fresh suggestions they may desire.

## BOOKS, ETC., RECEIVED.

APPLETON, D. AND CO., New York and London.

Obstetrics. A Text-book for the Use of Students and Practitioners. By J. Whitridge Williams, Professor of Obstetrics, Johns Hopkins University, Obstetrician-in-Chief to the Johns Hopkins Hospital. Price not stated.

The Surgical Diseases of the Genito-Urinary Organs. By E. L. Keyes, A.M., M.D., LL.D., Consulting Surgeon to the Bellevue and the Skin and Cancer Hospitals, and E. L. Keyes, junior, A.B., M.D., Ph.D., Lecturer on Genito-Urinary Surgery, New York Polyclinic Medical School and Hospital. Price not stated.

CHURCHILL, J. AND A., 7, Great Marlborough-street, London, W.

Muco-Membranous Entero-Colitis: Symptoms, Complications, Etiology, and Treatment. By Maurice De Langenhagen, M.D., Consulting Physician at Plombières, Vosges, France. Price 3*s.* 6*d.*

"Wild Oats": a Sermon in Rhyme. By Maurice C. Hime, M.A., LL.D., sometime Head-master of Foyle College, Derby. Price 1*s.* net.

HILTON AND CO., 109, College-street, Calcutta.

A Treatise on Materia Medica and Therapeutics, including Pharmacy, Dispensing, Pharmacology, and Administration of Drugs. By Rakhaldas Ghosh, L.M.S., Cal. Univ., Lecturer on Materia Medica, Calcutta Medical School. Vol. II. Price Rs. 3 or 5*s.*

HIRSCHWALD, AUGUST, Unter den Linden, 68, Berlin, N.W.

Das Gewebe und die Ursache der Krebsgeschwülste. Unter Berücksichtigung des Baues der Einzelligen Thierischen Organismen. Von Dr. Ludwig Feinberg, Arzt. Price M. 10.

IMPRENSA NACIONAL, Rio de Janeiro.

Recherches sur la Cause et la Prophylaxie de la Fièvre Jaune faites au Laboratoire de Biologie du Musée National de Rio-de-Janeiro. Par le Dr. J. B. de Lacerda, Directeur du Musée National de Rio-de-Janeiro et Directeur du Laboratoire de Biologie du même Musée. Price not stated.

JOHNSTON, W. AND A. K., LIMITED, Edinburgh and London.

The Castration of Cryptorchid Horses and the Ovariotomy of Troublesome Mares. By Fred T. G. Hobday, F.R.C.V.S., Member of the Board of Examiners of the Royal College of Veterinary Surgeons and late Professor in the Royal Veterinary College, London. Price not stated.

LEHMANN, J. F., München.

Vom Aerztlichen Intelligenzblatt zur Münchener Medizinischen Wochenschrift. Festrede gehalten von Medizinalrat Dr. Gottlieb Merkel. Geschichtliche und Statische Mitteilungen über die Münchener Medizinische Wochenschrift. Price 50 pf.

Atlas und Grundriss der Allgemeinen Pathologischen Histologie. Von Privatdocent Dr. Hermann Dürck, Assistent am Pathologischen Institut in München. Price M. 20.

Atlas und Grundriss der Topographischen und Angewandten Anatomie. Von Dr. med. Oskar Schultze, a.o. Professor der Anatomie in Würzburg. Price M. 16.

NAUD, C., 3, Rue Racine, Paris.

Atlas Manuel de Gymnastique Orthopédique. Traitement des Déviations de la Taille. Par Madame Nageotte Wiltouchewitch. Price 8 francs.

NOVELLO AND CO., LIMITED, London.

Education in Accordance with Natural Law. Suggestions for the Consideration of Parents, Teachers, and Social Reformers. By Charles B. Ingham. Price 3s. net.

OLDENBOURG, R., München.

Beitrag zur Kenntniss der Pestepidemiologie. Ratten, Mäuse und ihre Ektoparasiten. Vorläufige Mittheilung von Dr. Carlo Tiraboschi. (Sonderabdruck aus Archiv für Hygiene, Band XLVI.) Price not stated.

READE, A. ARTHUR, Wilmslow, Manchester.

The Story of Life Assurance. By A. Arthur Reade, Editor of *Business*. Price 5s.

UNIVERSITY PRESS, Cambridge.

Reports of the Cambridge Anthropological Expedition to Torres Straits. Vol. ii., Physiology and Psychology. Part II., Hearing, Smell, Taste, Cutaneous Sensations, Muscular Sense, Variations of Blood Pressure, Reaction Times. Price 7s. net.

VOGEL, F. C. W., Leipzig.

Archiv für Experimentelle Pathologie und Pharmakologie. Redigirt von Dr. B. Naunyn, Professor der Medicinischen Klinik in Strassburg i.E., und Dr. O. Schmiedeberg, Professor der Pharmakologie in Strassburg i.E. Band 49, Heft 2 und 3. (Preis eines Bandes 16 Mark.)

# Appointments.

*Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to* THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ADAMS, ALFRED, M.A., M.B., B.Ch. Oxford, M.R.C.S., L.R.C.P., has been appointed Medical Officer for the Looe District by the Liskeard (Cornwall) Board of Guardians.

BEATON, W. L., M.B., Ch.B. Aberd., has been appointed Senior House Surgeon to the West Ham and East London Hospital, E.

BLAKISTON, ARTHUR ALEXANDER, M.R.C.S., L.S.A., has been appointed Medical Officer of Health for the Borough of Glastonbury.

BOGER, WILLIAM HENRY, L.R.C.P. Eng., M.R.C.S., has been appointed Medical Officer for the Fowey District by the Liskeard (Cornwall) Board of Guardians.

DIXON, GODFREY BROOKES, L.R.C.P. Lond., M.R.C.S. Eng., L.S.A., has been appointed Assistant Medical Officer to the Walton Workhouse, West Derby Union, Liverpool.

FOSTER, E. C., M.R.C.S., L.R.C.P. Lond., has been appointed Junior House Surgeon to the Radcliffe Infirmary, Oxford.

HAMMOND, WILLIAM, L.R.C.P. Edin., M.R.C.S., L.S.A., has been appointed Medical Officer for the Menheniot District by the Liskeard (Cornwall) Board of Guardians.

HEGGS, T. BARRETT, M.B., Ch.B. Aberd., has been appointed House Physician to the Sussex County Hospital, vice J. Henderson, M.B., resigned.

JONES, A. ERNEST, M.B., B.S. Lond., M.R.C.S., L.R.C.P., has been appointed Principal Medical Officer to the North-Eastern Hospital for Children.

KNAPTON, GEORGE, L.R.C.P. Edin., has been appointed a Medical Examiner for the Scottish Imperial Insurance Company.

KNIGHT, WILFRED, M.B., L.R.C.P. Edin., has been appointed Junior House Surgeon to the West Ham and East London Hospital.

MACKAY, JAMES, M.B. Aberd., has been appointed Medical Examiner for the Hearts of Oak Benefit Society for Manchester, Moss Side, and Old Trafford.

SANKEY, R. H., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon to the Radcliffe Infirmary, Oxford.

SHARP, MARGARET S., M.B. Lond., has been appointed Assistant House Surgeon to the Middlesbrough Infirmary. (Corrected notice.)

SLADEN, GEORGE B., L.R.C.S. & L.M. Irel., L.S.A. Lond., has been re-appointed Medical Officer of Health to the Gainsborough Rural District Council and also Medical Superintendent of the Infectious Diseases Hospital.

TAYLOR, H., M.A., M.D., has been appointed Resident Medical Officer to the Birmingham Corporation Waterworks, Elan Valley, Radnorshire.

WILLIAMS, SYDNEY RICE, M.R.C.S., L.R.C.P. Lond., has been re-appointed Senior Resident Medical Officer and Registrar to the Mount Vernon Consumption Hospital, Hampstead, N.W.

# Vacancies.

*For further information regarding each vacancy reference should be made to the advertisement (see Index).*

BRIGHTON, HOVE, AND PRESTON DISPENSARY.—House Surgeon. Salary £160, with rooms, coals, gas, washing, and attendance.

CANCER HOSPITAL, Fulham, S.W.—House Surgeon for six months, renewable. Salary £70 per annum, with board and residence.

CARNARVONSHIRE AND ANGLESEY INFIRMARY, Bangor.—House Surgeon. Salary £80 per annum, with board, washing, and lodging.

CHARING CROSS HOSPITAL.—Assistant Physician.

CHESHIRE COUNTY ASYLUM, Parkside, Macclesfield.—Junior Assistant Medical Officer, unmarried. Salary £140, rising to £160 per annum, with board, apartments, washing, and attendance.

CHORLTON-UPON-MEDLOCK DISPENSARY, Manchester.—Resident House Surgeon, unmarried. Salary £120 per annum, with rooms and attendance.

CITY OF LIVERPOOL INFECTIOUS DISEASES HOSPITAL.—Assistant Resident Medical Officer, unmarried. Salary £120 per annum, with board, washing, and lodging.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £50 per annum, with rooms, board, washing, and attendance.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Ophthalmic Surgeon. Also Pathologist and Registrar. Honorarium £100. Also Dental Surgeon.

EASTERN DISPENSARY, Leman-street, Whitechapel.—Resident Medical Officer. Salary £140 per annum, with residence, coals, and attendance.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £20, with board and residence.

KIDDERMINSTER INFIRMARY AND CHILDREN'S HOSPITAL.—House Surgeon, unmarried. Salary £120, increasing to £150, with rooms and attendance.

LEEDS UNION WORKHOUSE, SCHOOLS, AND INFIRMARY, Beckett-street, Leeds.—Assistant Medical Officer, unmarried. Salary £130 per annum, rising to £150, with board, washing, apartments, and attendance.

LEICESTER INFIRMARY.—House Physician. Salary £100 per annum, with board, apartments, and washing.

MANCHESTER SOUTHERN AND MATERNITY HOSPITAL.—Resident House Surgeon. Honorarium at rate of £50 per annum and board.

MARGARET-STREET HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, 26, Margaret-street, Cavendish square, W.—Physician.

NEWCASTLE-UPON-TYNE DISPENSARY.—Resident Medical Officer. Salary £250, with residence.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and washing.

NORTH DEVON INFIRMARY, Barnstaple.—House Surgeon. Salary £80 per annum, with board, residence, and washing.

PADDINGTON-GREEN CHILDREN'S HOSPITAL, London, W.—House Physician and House Surgeon, both for six months. Salaries at rate of 50 guineas a year, with board and residence. Also Physician to the Skin Department.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Four Examiners in Anatomy and four Examiners in Physiology.

ROYAL MINERAL WATER HOSPITAL, Bath.—Resident Medical Officer (unmarried). Salary £100 per annum, with board and apartments. Also Registrar and Secretary. Salary £160 per annum and commission.

ROYAL SEA-BATHING HOSPITAL, Margate.—Resident Surgeon, as Junior, for six months, as Senior for like period. Salary at the rate of £80 and £120 per annum respectively, with board and residence.

SHEFFIELD ROYAL HOSPITAL.—Junior Assistant House Surgeon, unmarried. Salary £50 per annum, with board, washing, and lodging.

SOUTHPORT INFIRMARY.—Resident Junior House Surgeon and Visiting Surgeon, unmarried, for six months, renewable. Salary at rate of £70 per annum, with residence, board, and washing.

ST. MARK'S HOSPITAL FOR FISTULA, &c., City-road, E.C.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

STATE OF SARAWAK, MEDICAL DEPARTMENT.—Medical Officer, unmarried. Salary $300 a month and free unfurnished quarters.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry. Also Honorary Surgeon.

WEST HERTS INFIRMARY, Hemel Hempstead.—House Surgeon, unmarried. Salary £100 per annum, with rooms, board, &c.

WESTMINSTER GENERAL DISPENSARY.—Honorary Dental Surgeon.

# Births, Marriages, and Deaths.

## BIRTHS.

BOYD.—On Easter Sunday, at Portishead, Somerset, the wife of George Boyd, M.R.C.S., L.R.C.P., of a son.

BRYANT.—On April 13th, at St. Thomas's-street, the wife of J. H. Bryant, M.D., F.R.C.P. Lond., of a daughter.

GOLDNEY.—On the 8th April, at Richmond, Surrey, the wife of Thomas W. Goldney, M.R.C.S., of a son.

WIMBLE.—On April 12th, at Walkern, Stevenage, Herts., the wife of Herbert Charles Wimble, M.R.C.S. Eng., L.R.C.P. Lond., of a daughter.

## MARRIAGES.

COLMAN—MACKIE.—On April 15th, at St. Mary's, Broughty Ferry, N.B., by the Rev. George Mackness, D.D., Horace Crackenthorp Colman, M.D. Edin., Broughty Ferry, to Nora, second daughter of David Mackie, St. Katherine's, Broughty Ferry.

BENTHAM—DICKINSON.—On Easter Monday, April 14th, 1873, at St. George's Church, Camberwell, Edward Cooper Bentham, M.R.C.S., of Barbadoes, W.I., to Emilie Dickinson of Haverstock Hill, whose address now is 9, Old Cavendish-street, Cavendish-square, W.

## DEATHS.

FORSYTH.—At Eyemouth, on Saturday, April 11th, suddenly, after a few days' illness, John Glen Forsyth, M.B., C.M., Assistant Medical Officer, West Riding Asylum, Wakefield, the younger son of Dr. James Forsyth, Eyemouth.

GARDNER.—On April 9th, Harry Gardner, M.D., at his residence, Guibal Lodge, Guibal-road, Lee, S.E.

PRIESTLEY.—On March 31st, at his residence, Lee-on-the-Solent, Hampshire, of blood poisoning, James Priestley, B.A., M.D., D.P.H. (Royal College of Physicians and Surgeons, London) youngest son of the late James Priestley of Saintfield, co. Down. Deeply regretted.

SMITH.—On April 6th, Solomon C. Smith, M.D. Durh., M.R.C.P. Lond., at Walton-on-Thames.

*N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

# Notes, Short Comments, and Answers to Correspondents.

## INVALIDS AND STREET NOISES.

*To the Editors of* THE LANCET.

SIRS,—No doubt it has been the experience of many of your readers to have illness in their houses of a nature requiring absolute quietness, when street noises are not only harmful to the one they love but distressing to themselves. One knows that permission may be obtained to put down straw in the street, but many cannot afford this and many illnesses so suddenly take an alarming turn that the crisis may unhappily be over before the necessary arrangements can be made. As a remedy, perhaps partial, it has occurred to me that much suffering might be spared by the simple expedient of hanging out at door, window, or gate, a white flag as a sign that illness requiring quietude was in the house. It may be urged that such a signal would not be regarded. I do not think so. All, rich and poor, are liable to illness; most people have been brought into touch with it and have experienced the distress and grief which illness brings in its train; some might not observe, or might be heedless of, the signal, but the percentage would be small. Such a flag can be improvised in a few minutes at a trifling cost by the poorest. At night, if a flag cannot be seen, a lantern with a blue or other light would be equally efficacious. It is possible that a few selfish people might abuse the signal to insure quietness although they had no case of illness, but it would be very difficult to keep up a deception of the kind permanently; and, indeed, it would be possible to have a special white flag issued by the local authority or the police on production of a note from a medical man attending the case, in which case it would be an authority to the police to deal with offenders causing unnecessary noises, including noisy vehicles. Its simplicity and general application in all circumstances of life would soon insure its adoption in the course of time. The period would be shortened if the plan were to be recommended by the medical and clerical professions and the press. At once all over the British Isles would the idea be known and in a short time the "white flag" would be recognised and respected by all.

I am, Sirs, yours faithfully,

Balham, April 13th, 1903. ERNEST W. CRICKMAY.

## "THE HUTTON-DIXON CURE."

*To the Editors of* THE LANCET.

SIRS,—Can any of your readers give me any information concerning a so-called treatment for alcoholism and the drug habit called the "Hutton-Dixon cure"? I am, Sirs, yours faithfully,

April 14th, 1903. R. F.

## PLAGUE IN SAN FRANCISCO.

THE remarkable controversy as to whether plague exists or does not exist in San Francisco is still in progress. The municipal authorities assert that the city is free from plague but the April number of the *Maryland Medical Journal* states that the Mexican Government not without good reason distrusts these representations and consequently quarantine is in force throughout the Mexican Republic against vessels from San Francisco. The Superior Board of Health of Mexico is said to be in possession of information that plague existed there in January last, notwithstanding the official reports from both Washington and San Francisco that no case of plague had been discovered since Dec. 11th, 1902.

## SELF-ADVERTISEMENT IN THE PROFESSION.

*To the Editors of* THE LANCET.

SIRS,—"Non cuivis homini contingit adire Corinthum." We cannot all live in Mayfair, write bulletins concerning distinguished patients, send guineas for paragraphs in the fashionable papers announcing our departure from, or return to, our residences, or pay for advertising our books (which nobody buys). But for the provincial practitioner there are ways of blowing the trumpet which seem legitimate, if I am to judge by what goes on in my own neighbourhood with impunity. The time-honoured dodge of being called out of church bears the *imprimatur* of Mr. Bob Sawyer and is played out; but I take it that no young medical man nowadays sets up in practice without giving a course of "first aid" lectures, and so getting himself duly placarded about the country. Even a better plan is to get appointed surgeon to a local ambulance corps or a football club, when one's name, qualifications, and address are printed at the head of a circular to be posted in all the taprooms and public places in the locality. The assumption of the title of "Dr." may here be made boldly. To have one's portrait "took large" and exhibited week after week in the shop window of the local photographer is merely a matter of arrangement with that tradesman. To set up a brass-plate in a neighbouring town or village where one has no residence, regardless of the fact that a member of the medical profession is already located there, is held to be merely progressive; even to allow one's name to appear on the lintel of a druggist's shop in similar circumstances seems to be condoned, although it is questionable if this does not go perilously near "covering." But woe betide the luckless wight who dares to print his name and address on his own medicine labels, for if he does he will have the medical press down on him like a cartload of bricks and be boycotted by his righteously indignant professional brethren. Lest the latter fate should be mine if my identity were disclosed I will shelter myself under anonymity and (inclosing my card) subscribe myself, Sirs, your obedient servant,

April 13th, 1903. PALMAM QUI MERUIT FERAT.

## THE PROTECTIVE ACTION OF THE VOLATILE OILS ON IMMATURE FRUITS.

DR. GEORGE HENDERSON, F.L.S., in a recent issue of the *Journal of Botany* makes the interesting suggestion that the essential oils of plants may in some way protect from injury by frost fruit which is setting. The late Professor Tyndall has shown that infinitesimal quantities of the essential oils in the air increased greatly its power of absorbing certain heat rays, and Dr. Henderson's theory is that the essential oils help to prevent radiation at night and thus preserve the blossoms and allow the fruit to set. "In the low hills of Punjab Himalaya," says the writer, "from 1000 to 4000 feet above the sea and 10 to 20 miles across, at the end of March and in April, when most of the plants are coming into flower, one would expect the blossoms to be blighted by late frost; but at that season the air is filled with the odours of essential oils from these blossoms to such an extent as to be at times, especially on a still night, quite overpowering." Dr. Henderson's interesting theory is worthy of further investigation.

## AN IMPROPER ADVERTISEMENT.

*To the Editors of* THE LANCET.

SIRS,—I inclose a cutting from the current number of the *Church Family Newspaper*. Do you think the testimonial is quite the thing on the part of a qualified practitioner?

I am, Sirs, yours faithfully,

M.R.C.S., &c.

[INCLOSURE.]

THAT HOLLOW TOOTH. Phillips' Toothache Stopping, applied to a decayed tooth, cures toothache instantly, and saves the tooth. Approved by F. Morell Mackenzie, Esq., M.R.C.S. and L.S.A., who writes, "Has given great relief to several of my patients." 1s 1½d., sample 7½d., post free 8½d.—F. PHILLIPS, Chemist, West Norwood.

*** Mr. Morell Mackenzie should insist upon the suppression of the advertisement.—ED. L.

## INACCURATE.

ONE "X rayser," writing a column entitled "Observations and Reflections" in the *Chemist and Druggist* of April 11th, gives currency to an entirely false story about THE LANCET. "X rayser" quotes from a homœopathic journal a statement that a person paid us money for certain advertisements which never appeared, the cheque being afterwards returned with an intimation that the advertisements were inadmissible. The whole story is a fabrication. The advertisements of the work in question were refused on the spot and no money was received by us in respect of them. It would be well if the editor of the *Chemist and Druggist* would remember, and would instruct his staff, that statements concerning THE LANCET which appear in the homœopathic press are not likely to be accurate.

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*The Other Partner* proposes a nice conundrum for the casuist. The naval medical officer having made a paying patient of himself has brought himself, in our idea, within the scope of the terms of the agreement and his cheque should be placed to the partnership account. It would, however, we think, be not only a graceful but a proper act if our correspondent insisted upon receiving no benefit from the cheque. This is our view, but a diametrically opposite one could be taken upon good grounds.

*H. C.*—We will see if it is possible to interfere with this quack's trade, but we fear it is impossible in the present state of the law to prevent him from styling himself a medical specialist so long as he does not pretend to possess the qualifications for medical registration.

*M.B., M.R.C.S.*—We do not know of any periodical that exactly meets our correspondent's wants. *Nature*, a weekly illustrated journal of science, published by Macmillan and Co., St. Martin's-street, W.C., 6*d.*, we recommend as nearest to what he wants.

*A. J.*—The letter is one that might well be published, but it should not, we think, be signed by a medical man or bear the address of a medical man; especially is such publicity to be avoided by any medical man who practises ophthalmic surgery.

*Medicus.*—As colonial medical officers are chiefly required for the West Indies and the West African colonies only young and strong men are selected. All applications should be made to the Colonial Office, where full information can be obtained.

*C. C. B. T.*—Many of the books and magazines that reach this office dealing with "health culture" publish obscene advertisements.

*Traveller.*—The General Medical Council would not, we think, take an unfavourable view of the advertisement in question.

*W. H. H.*—The eggs must be kept submerged in a 10 per cent. solution of silicate of soda.

*Constant Reader.*—The questions have all been dealt with in our columns.

# Medical Diary for the ensuing Week.

## OPERATIONS.

### METROPOLITAN HOSPITALS.

**MONDAY (20th).**—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

**TUESDAY (21st).**—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.) London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.).

**WEDNESDAY (22nd).**—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M).

**THURSDAY (23rd).**—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat, (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

**FRIDAY (24th).**—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.).

**SATURDAY (25th).**—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

## SOCIETIES.

**TUESDAY (21st).**—SOCIETY FOR THE STUDY OF INEBRIETY (Rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W.).—3.30 P.M. Council Meeting. 4 P.M. Address:—Dr. H. Campbell (President): The Study of Inebriety, a Retrospect and a Forecast. Paper:—Mr. A. Sherwell: Inebriety in Scotland. Dr. T. C. Shaw, Dr. A. P. Luff, Dr. H. Rayner, Dr. A. Reid, and others have consented to take part in the discussion.

PATHOLOGICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M. Papers: Mr A. G. R. Foulerton and Dr. A. M. Kellas: The Action on Bacteria of Electrical Currents (or Discharges) of High Potential and Rapid Frequency.—Dr. W. Bulloch: The Influence of Salts on the Action of Immune Hæmolysins.—Dr. S. Lazarus-Barlow: A Further Note on a Case of Multiple Granulomata caused by a Higher Mould Fungus.—Dr. D'Este Emery: A Case of *Streptothrix* Infection.

**WEDNESDAY (22nd).**—BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M. Adjourned discussion on the Dietetic Factor in Health Resort Treatment (re-opened by Dr. A. P. Luff).

DERMATOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.—4.30 P.M. Meeting.

**THURSDAY (23rd).**—BRITISH GYNÆCOLOGICAL SOCIETY (20, Hanover-square, W.).—8 P.M. Specimens will be shown by Dr. I. Parsons, Dr. Macnaughton-Jones, and Dr. B. Fenwick. Postponed Discussion on Mr. Bishop's paper. Paper:—Mr. F. B. Jessett: Some Rare Complications accompanying Ectopic Gestation.

**FRIDAY (24th).**—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8 P.M. Exhibition of Clinical Cases followed by Discussion. Patients will be in attendance from 8 P.M. to 9 P.M.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

**MONDAY (20th).**—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. G. Little: Clinique. (Skin.) 5.15 P.M. Prof. A. E. Wright: On Blood Coagulability and its Relation to Hæmorrhage and Thrombosis.

**TUESDAY (21st).**—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. Taylor: Clinique. (Medical.) 5.15 P.M. Dr. G. F. Still: Heart Disease in Children.

ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—5 P.M. Prof. A. Macfadyen: The Blood and Some of its Problems.

**WEDNESDAY (22nd).**—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. P. J. Freyer: Clinique. (Surgical.) 5.15 P.M. Dr. H. Campbell: On States of Unconsciousness.

**THURSDAY (23rd).**—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M. Mr. J. Cantlie: The Anatomy, Common Ailments of the Liver, and their Surgical Treatment.

ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—5 P.M. Prof. Dewar: Hydrogen: Gaseous, Liquid, and Solid.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4 P.M. Clinical Lecture:—Dr. A. J. Whiting: The Knee-jerk and Plantar Reflex in Diagnosis.

**FRIDAY (24th).**—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. P. R. W. de Santi: Clinique. (Throat.) 5.15 P.M. Mr. H. Pinch: Immunity.

ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—9 P.M. Hon. R. J. Strutt: Some Recent Investigations on Electrical Conduction.

## EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

*It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.*

*Lectures, original articles, and reports should be written on one side of the paper only,* AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

*Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.*

*We cannot prescribe or recommend practitioners.*

*Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."*

*Letters relating to the publication, sale and advertising departments of* THE LANCET *should be addressed "To the Manager."*

*We cannot undertake to return MSS. not used.*

## MANAGER'S NOTICES.

### TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

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## METEOROLOGICAL READINGS.

*(Taken daily at 8.30 a.m. by Steward's Instruments.)*

THE LANCET Office, April 16th, 1903.

| Date. | Barometer reduced to Sea Level and 32° F. | Direction of Wind. | Rainfall. | Solar Radia in Vacuo. | Maximum Temp. Shade. | Min. Temp | Wet Bulb. | Dry Bulb. | Remarks at 8.30 A.M. |
|---|---|---|---|---|---|---|---|---|---|
| April 10 | 30·28 | S.W. | ... | 69 | 54 | 45 | 44 | 50 | Overcast |
| ,, 11 | 30·12 | S.W. | ... | 76 | 55 | 42 | 48 | 50 | Overcast |
| ,, 12 | 29·99 | W. | ... | 96 | 52 | 42 | 41 | 47 | Cloudy |
| ,, 13 | 29·89 | W. | ... | 95 | 50 | 35 | 37 | 41 | Fine |
| ,, 14 | 29·99 | N.W. | ... | 92 | 51 | 33 | 37 | 40 | Cloudy |
| ,, 15 | 29·90 | N.N.W | 0·05 | 91 | 51 | 40 | 40 | 42 | Overcast |
| ,, 16 | 30·15 | N. | ... | 82 | 47 | 34 | 36 | 39 | Fine |

**During the week marked copies of the following newspapers have been received:** *Bradford Observer, Wigan Examiner, Glasgow Herald, Lambeth Mercury, Lincoln Herald, Windsor and Eton Express, Derbyshire Courier, Manchester Weekly Chronicle, Reading Mercury, Herts Advertiser, Aberdeen Daily Journal Times of India, Aberdeen Weekly Free Press, Lancashire Post, Oldham Daily Standard Daily Mail, South Wales Echo, Westminster Gazette, Pioneer Mail (India), Devon and Exeter Express, Burnley Express, Globe, &c.*

## Communications, Letters, &c., have been received from—

A.—Messrs. Allen and Hanburys, Lond.

B.—Dr. J. Burnet, Edinburgh; Messrs. Blackie and Son, Lond.; Dr. J. Cunningham Bowie, Cardiff; *British Inventor (The)*, Lond., Editor of; Dr. H. F. Bellamy, Abbots Langley; Dr. A. Boycott, St. Albans; Dr. Cresswell Baber, Brighton; Messrs. Benson and Co., Lond.; Mr. C. Birchall, Liverpool; Brighton, Hove, &c., Dispensary, Secretary of; Mr. L. J. Botting, Lond.; Mr. Blackett, Lond.

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R.—Dr. M. K. Robinson, Dover; Messrs. Reynolds and Branson, Leeds; Miss A. Rowley, Lond.; R. A. B., Saltburn-by-the-Sea; Royal Meteorological Society, Lond., Assistant Secretary of.

S.—Mr. J. O. Symes, Clifton; Dr. B. C. Stevens, Rotherham; Mr. J. K. Stone, Newport, Mon.; Mr. J. M. Stoker, Lond.; Mr. Kenneth Scott, Lond.; Mr. S. H. Sharpe, Lond.; Mr. J. L. Stretton, Kidderminster; Mr. L. W. Seymour, Hyderabad; Dr. J. Scott, Glasgow; Southport Infirmary, Secretary of; Dr. Id. Schloesser, Locarno; Mrs. Seymour, Oxford; *Straits Echo*, Penang, Manager of; Messrs. G. Street and Co., Lond.; Saarbach's News Exchange, Mainz; Scholastic, Clerical, &c., Association, Lond.; Dr. B. C. Stevens, Swinton; Dr. J. H. Swanton, Lond.; Mr. Ch. Herman Senn, Lond.

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Z.—Messrs. C. Zimmermann and Co., Lond.; Dr. F. Zeigan, Berlin.

## Letters, each with enclosure, are also acknowledged from—

A.—Mr. A. H. Allen, Sheffield; Apollinaris Co., Lond; A. H.; A. L.; A. R. M.

B.—Mr. T. B. Browne, Lond.; Messrs. Bates, Hendy, and Co., Reading; Birmingham Children's Hospital, Secretary of; Dr. J. H. Bryant, Lond.

C.—Dr. O. J. Currie, Maritzburg; Mr. E. Collins, Sawbridgeworth; Mr. R. H. Currey, Newport, Mon.; Chesterfield Hospital, Secretary of; C. C.; Crooksbury Sanatorium, Medical Superintendent of; C. E. W.; Dr. H. C. Colman, Broughty Ferry; Mr. F. W. Clarke, Manchester; Miss S. Cotterell, Kibworth.

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E.—E. F.; E. B.

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